In Search of Musical Logic

Bruce Benward

The following theory of music was brought into existence primarily to fulfill the needs of undergraduate students who are amazingly bright, curious, inquisitive, and deplorably shortchanged. Along with the teaching of the realization of figured bass (150 years old) and the harmonizing of eighteenth-century chorales (200 years old), macro analysis (new) fits neatly as a type of analysis that augments both figured bass and chorale harmonization. I am pleased to say that since its inception, not a single student has ever indicated a negative statement to me toward macro analysis.

The information included in this article is designed to introduce macro analysis to individuals who would like to become fluent in the analytical system. By using any current theory textbook along with this document, macro analysis may be successfully applied. Some procedures and methods in textbooks can be easily exchanged or superseded by macro analysis. This document is not a theory textbook.

Introduction to Macro Analysis

The Handwriting on the Wall

Why would anyone abandon a well-accepted analytical system of music that is easy to teach and has historical endorsements back as far as 1750? It is true that our current system was developed from a synthesis of figured bass (Albrechtsberger) and roman numerals (Georg Vogler). Both theorists were most active in the late eighteenth century, yet their ideas have been perpetuated virtually unchanged into the twentieth century (two hundred years). Almost all of the most popular theory texts sold in the United States are based on the teachings of Albrechtsberger and Vogler.

Although I had often planned to research ways to improve analytical techniques to which students are subjected, no magic plan popped up to meet the challenge. This stagnated situation changed drastically, triggered by an assignment for the honors students to analyze the first movement of Beethoven's Sonata Op. 2, No. 1. This is the type of analysis well known to undergraduate students and explained in a majority of current theory texts. After a cursory inspection, I pronounced the assignment successful but harbored an uneasy feeling—why should I be suspicious?

After all, a majority of students had analyzed the movement accurately and according to the directions I had given. Chord by chord, the analysis had been meticulously prepared and most members of the class could muster information regarding individual chords, phrases, modulations, and sketchy details concerning form. But, when I asked, "What did you learn from this assignment?" most admitted that their bits and pieces gathered from here and there lacked focus, a clear view of the composition as a whole. They were able to follow the telltale formal guidelines (mostly melodic), just as described in the text, but had assimilated little beyond that. Information that would explain the fundamental nature of the composition was missing. The single most disheartening component of this predicament was the belief, on the part of the students, that they had followed all the directions but had failed to achieve fulfillment and satisfaction.

Thrashing Around

I recalled a powerful one-liner by the French painter, Jean Fautrier, "One only invents that which is." This statement had always been a problem for me. I thought that an invention was something that did not heretofore exist, and it took me some time to realize that Fautrier was dead right. With this admonition in the back of my mind, I knew that the answer to my adventure lay in the music itself.

Progress and Solid Ground

It was somewhere between 1975 and 1980 that I began to notice the consistency of circle-of-fifth progressions in all compositions I investigated. I was aware that researchers occasionally accompanied descriptions of circle patterns but usually with vague, sketchy, and inconsistent information. So, the strict analysis of all circle progressions, and the charting of musical direction through the rigorous monitoring of circles is something I stumbled upon, and I, along with colleagues and faithful students, became the first to employ and perfect the technique you see in this document known as macro analysis. When I first began to diagram circles, I was astonished at the steady consistency of circle-after-circle with interruptions only occurring at points to allow the streams to renew themselves and resume fresh series at important points. Often a complete composition would consist of 80% circle progressions. After I was convinced that circles were indeed the single most significant and consequential pattern in tonal music, I thought back to the statement by Alban Berg. He wrote, "the best music always results from ecstasies of logic." Ecstasies of logic? I had always thought this statement was intended only for Berg's own musical style, but now I know it applies as well to tonal

music. What better "ecstasies of logic" exist in tonal music than the timeless circle progressions that had been hiding patiently and unnoticed until I sensitized my eyes and ears in quite a new way to pick up and identify circles by the millions in tonal compositions. The steadfast and unwavering logic of G–C or d–G–C or a–d–G–C recurs so powerfully, and yet sounds so innocent and fresh indeed. What would tonal music be without the steady beacon of the ubiquitous circle?

How to Teach Macro Analysis

Three Basic Steps

Macro analysis symbols are comprised of letter names and slurs, and these symbols can be paired with roman numerals. I suggest the following steps to learning macro analysis:

Step 1 *Become familiar with letter names.*

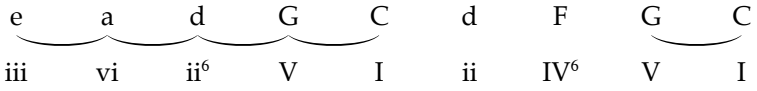
Use uppercase letters for major triads:	C	F	G
Use lowercase letters for minor triads.	c	f	g
Use "o" with lowercase letters for diminished triads:	c°	f°	g°
Use "+" with uppercase letters for augmented triads:	C^+	F^+	G^+

Step 2 *Learn how to add slurs.*

Slurs are used to connect all adjacent letters where the roots move by ascending fourths or descending fifths:

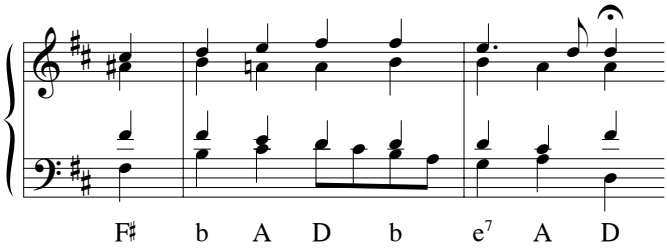
Step 3 *Practice adding roman numerals below the macro analysis symbols.*

If you wish to use macro analysis in combination with roman numeral analysis, add roman numerals below the letter names:



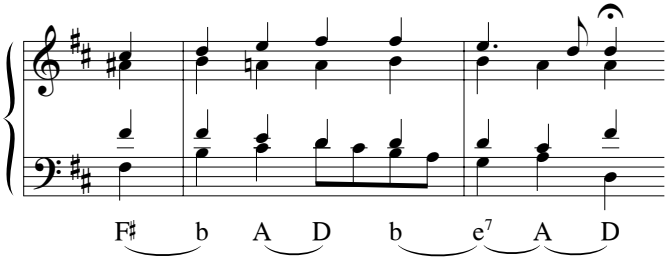
Add position numbers only to roman numerals—not to letter names. Add slurs to letter names only—not to roman numerals. It is not necessary to add numbers to letter names except to indicate 7th, 9th, 11th, or 13th chords. The examples which follow demonstrate the application of these three basic steps to an excerpt of music.

Letter Names. To begin, I suggest analyzing an entire portion of music with letter names only. When examples are short or straight forward, this seems like an extra step to some students, but as examples become longer or more complicated this step is very helpful. From a pedagogical standpoint, this step of the system is by far the most critical; often tremendous improvement in both speed and accuracy occurs for students having difficulties when they incorporate this step into their analysis.



Example 1. Bach, "Wer nur den lieben Gott lässt walten," mm. 6–7. The entire excerpt is analyzed first with letter names.

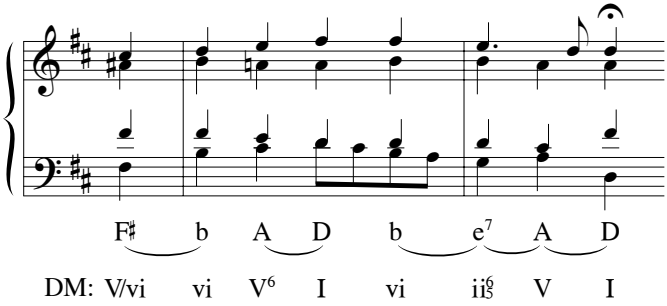
Slurs. The next step is to identify letter symbols in neighboring positions whose root names are related by ascending fourths or descending fifths. Slurs are added to these letters to identify circle-of-fifth progressions.



Example 2. Bach, "Wer nur den lieben Gott lässt walten," mm. 6–7. Circle progression slurs are added to letters related by ascending fourths or descending fifths.

Roman Numerals. After letter names and slurs have been added, go back and determine the roman numerals. Once you have identified the

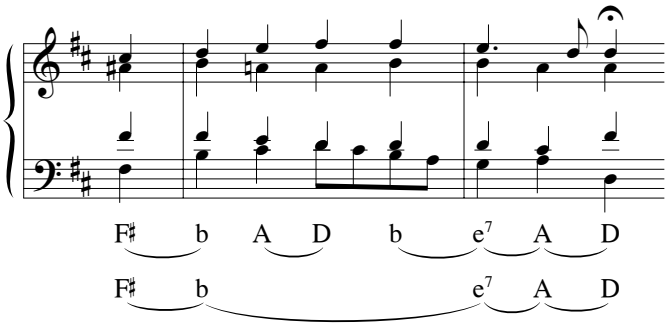
letter name of a chord, it will assist in identifying secondary dominants and modulations.



Example 3. **Bach, "Wer nur den lieben Gott lässt walten," mm. 6–7. Corresponding roman numerals are added. Position numbers occur with roman numerals, but not with letters.**

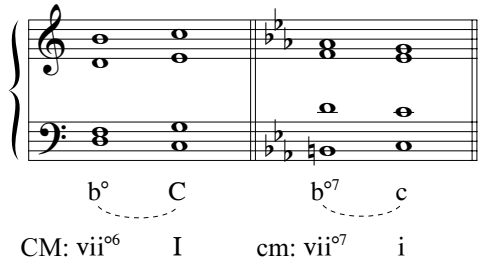
Further Guidelines

Macro Analysis. Macro (meaning large) analysis is intended to analyze and discover larger portions of a composition. Patterns that are not easily seen, become more visible through the use of macro analysis. In the example below, a chain of circle progressions are revealed.



Example 4. Bach, "Wer nur den lieben Gott lässt walten," mm. 6–7. Two layers of macro analysis reveal a continuous series of circles in this excerpt. Notice that all chords are the beginning or ending of a circle.

Dotted Slurs. Slurs are an integral part of macro analysis because they reveal the forward motion created by circle progressions. Although one of the most common recurring circles occurs between the dominant and tonic, sometimes leading-tone chords appear in place of the dominant. It is important to remember that the leading-tone triad contains many characteristics of the dominant seventh chord (V^7 = G B D F, while vii° = B D F, and $vii^{ø7}$ = B D F A). In macro analysis, leading-tone substitutions receive a special dotted slur to indicate the substitution. Add dotted slurs between instances where vii° progresses to i or I.

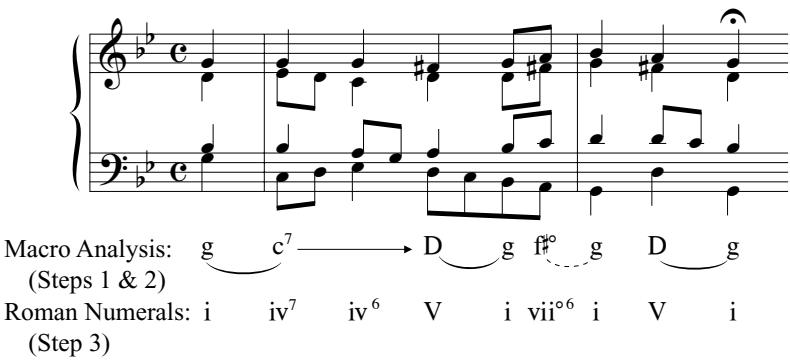


Example 5. Dotted Slurs. Add dotted slurs between leading-tone and tonic macro analysis symbols.

Traditional Analysis. Always be aware that traditional analysis employing roman numerals is the best way to analyze the small details of music, the voice-leading details, and other points that require small details and other minutia.

It is important to remember that the upper line of the analysis represents the non-traditional portions of the analysis and includes letter names, slurs, and any other markings that may be needed. The lower line of the analysis incorporates traditional analysis including roman numerals and inversion numbers. The roman numerals emphasize the tonic and the position of every chord in relation to the tonic.

The following excerpt serves as a summary examples of this analytical methodology. The macro analysis letters specify each chord's root and quality. The solid slurs indicate circle progressions, thereby emphasizing forward motion, and the dotted slurs uncover instances where the leading-tone is substituting for the dominant. Interestingly, the slurs highlight the predominance of circle progressions that exist within tonal compositions. It is very common for each letter to be either the beginning or the ending of a circle progression.



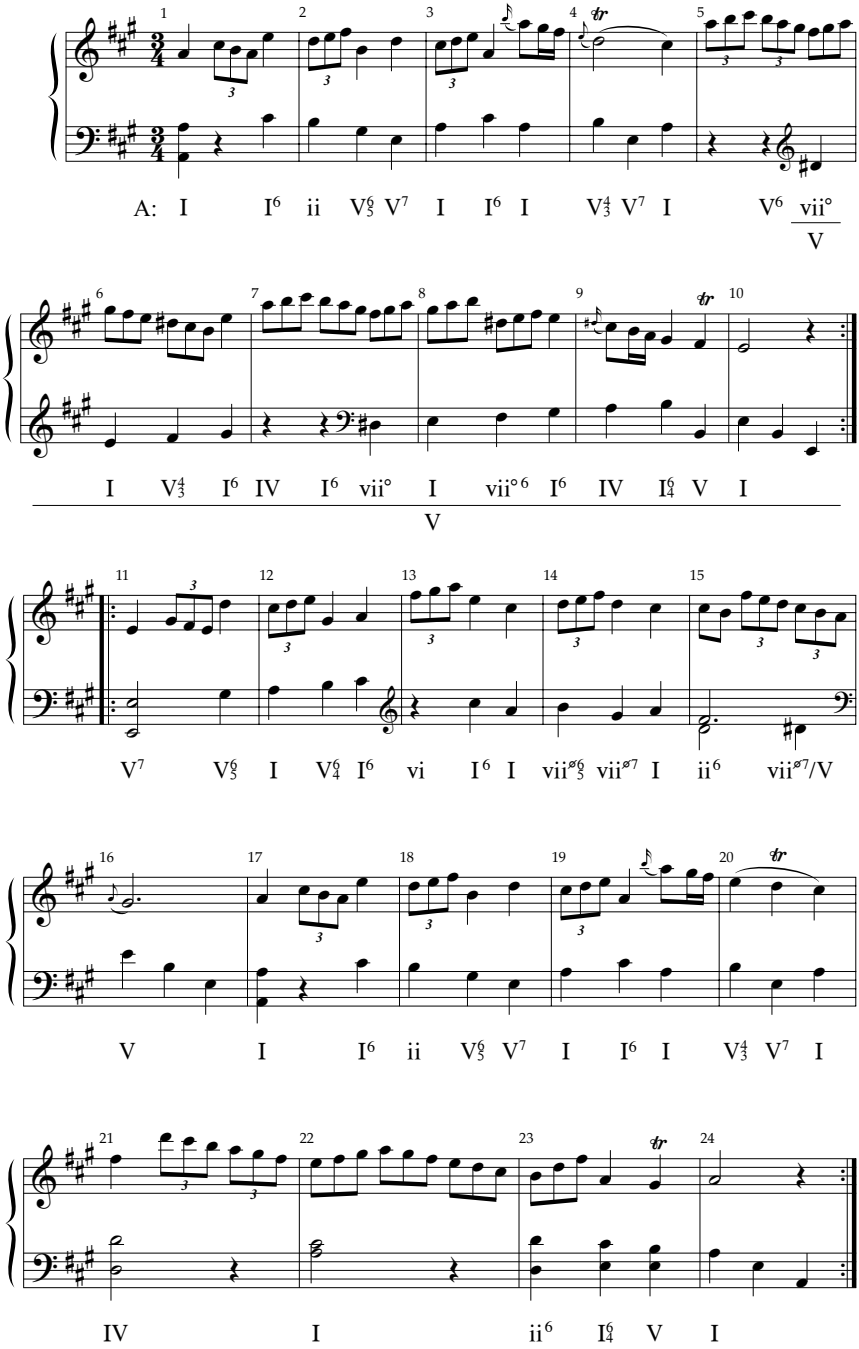
Example 6. Bach, "Verleih' uns Frieden gnädiglich," mm. 1–2 The root of the diminished triad (f♯°) resolves up a half step and functions like a dominant. Also, note that each chord is either the beginning or the ending of a circle progression.

The macro analysis system is specifically intended to be flexible. You may wish to have your students also mark various other progressions, such as those that move by thirds, or step progressions. The system allows the instructor to tailor the analysis to the specific needs of the students and/or to the instructor's own requirements for analysis.

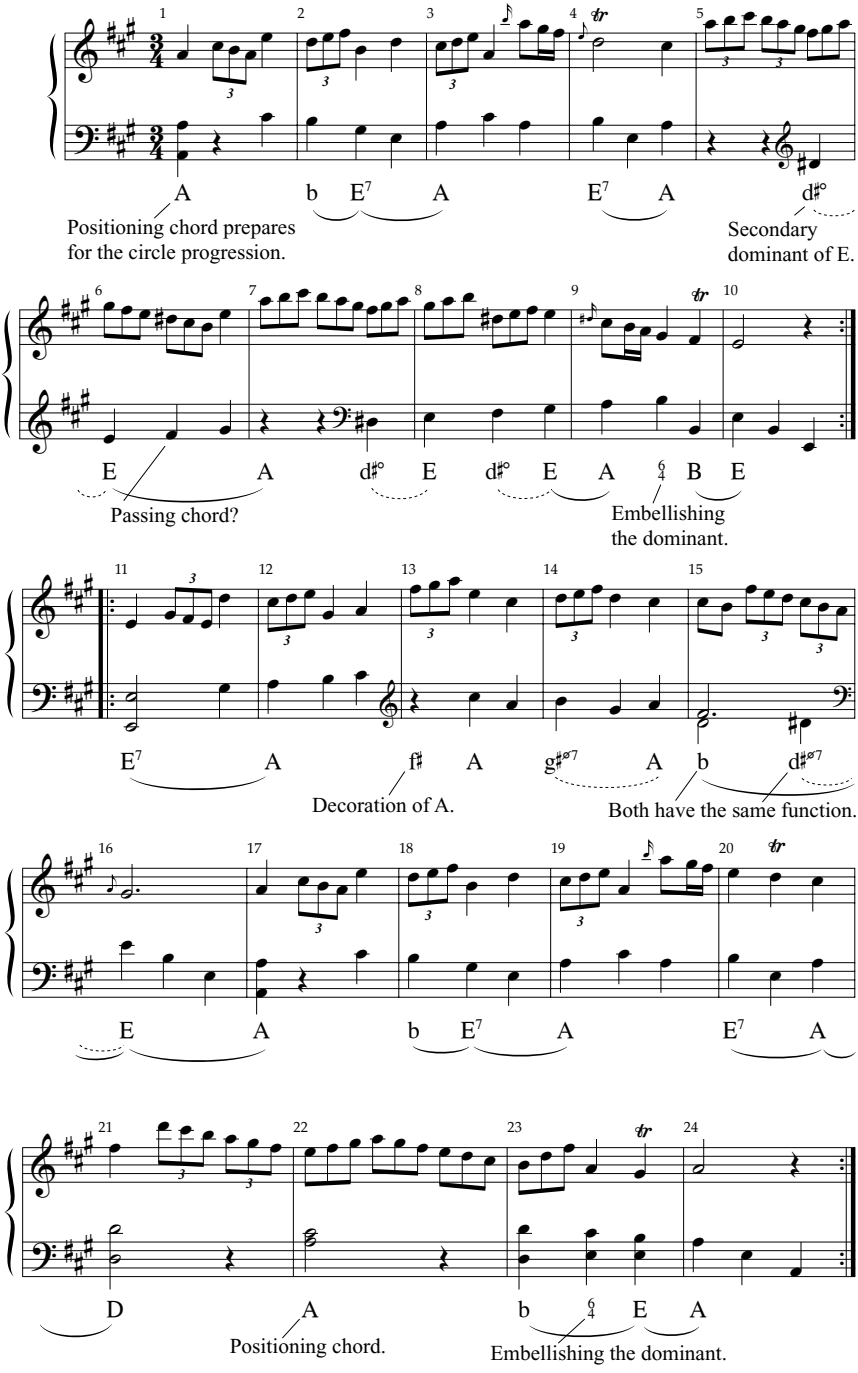
Investigating Macro Analysis

To illustrate the added benefits of macro analysis, examine first the traditional analysis of Haydn's Piano Sonata in A Major, Hob. XVI/12, the Menuet movement (example 7). It contains much of the information also found in macro analysis, but macro is designed specifically to expose larger configurations and paradigms that may not occur contiguously. There is no particular reason that traditional analysis would be intrinsically inferior, but its purpose was designed in the eighteenth century for a different role, thus, my decision to conceive a different kind of analysis—one that is capable of functioning in a broader nature.

With traditional analysis we are able to determine chord function, but finding a way to discover and explore these larger chunks will give us information our performers have always known about but did not know how to manage properly. Now look at the macro analysis of Haydn's Piano Sonata in A Major, Hob. XVI/12, Menuet movement (example 8).



Example 7. Haydn, Piano Sonata, Hob. XVI/12, II: Menuet.



Example 8. Haydn, Piano Sonata, Hob. XVI/12, II: Menuet.

Some of the information discovered from the macro analysis:

The V Chord. An older harmony text (1941) states that a V chord is followed sometimes by I, sometimes VI or IV, but less often III or ii. This accounts for every diatonic triad in the key except vii°. Look carefully at the Haydn Menuet in example 8 and you will find that the V triad always progresses to the tonic (I). Furthermore, d♯° always resolves to E**.** Why does d♯° always resolve to an E chord? While you are looking, determine the nature of other chords, such as b (ii).

Tonal Profile. You will notice that the E to A progression occurs nine times in this 24-measure sonata movement. The movement is dominated by the E to A progression. With the information found in the tonal profile given below, one piano major student was able to memorize the entire movement in less than 45 minutes.

Circle Roots:	**F♯**	**B (D♯)**	**E (G♯)**	**A**	**D**
Measures: 1				A	
2–3		b	E^7	A	
4			E^7	A	
5–7		d♯°	E	A	
7–8		d♯°	E		
8–9		d♯°	E	A	
9–10		B	E		
11–12			E^7	A	
13	f♯			A	
14			$g♯^{ø7}$	A	
15–17		b / $d♯^{ø7}$	E	A	
18–19		b	E^7	A	
20–21			E^7	A	D
23–24		b	E	A	

Tonal Profile of Haydn's Menuet from Piano Sonata, XVI/12.

Circle Stream. The constant flow of circle progressions in almost every tonal composition analyzed to this moment was a surprise. Except for the certain sections where circles are purposely avoided, the interminable flow of forward movement has been an unanticipated phenomenon. For those of you reading this for the first time, select a familiar composition, and analyze portions of it for this flow of circle progressions.

The d♯° Chord. Using the tonal profile, determine if the d♯° triad is as predictable as the E triad or E^7 chord.

No Circle. There are only four chords in the entire composition that do not begin or end a circle series. See if you can find those four chords.

Six-four Chords. The macro analysis of this Menuet includes two "$\frac{6}{4}$" labels. Although second-inversion triads are not typically assigned macro symbols (because of their small-scale embellishing function), the "$\frac{6}{4}$" label has been included to explain the absence of a macro symbol.

Anticipation. The composition is a study in anticipation. Think of at least two other instances where chords are predictable.

Forward Motion. Can you tell the form of the composition by looking at the tonal profile on the previous page? The progressions placed within bold lines indicate perfect authentic cadences.

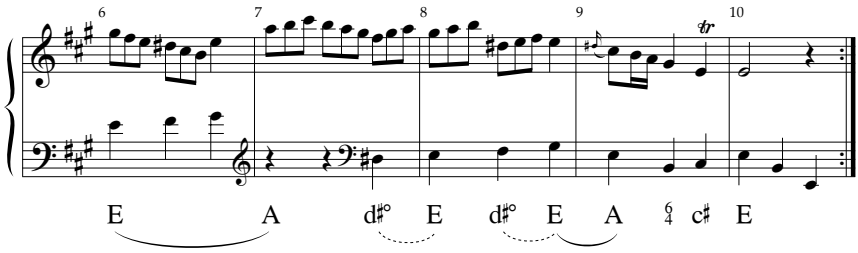
Chord Function. In the macro analysis (example 8), the statement is made that both b and $d♯^{ø7}$ have the same function. Do you know why?

Interpretation. Those who are performers are encouraged to search for interpretive material that may produce a distinctive interpretation. The Haydn Menuet example is selected because of its typical circle paths in the classical period. Could you find one or two ways in which the analysis would help you select an interpretation?

An example to test your comprehension:

The following excerpt is from the same Menuet by Haydn analyzed in examples 7 and 8 in detail. One system of the composition follows, but one chord, originally written by Haydn, is removed and another chord (selected by the diabolical author) is put in its place. If you have followed the macro analysis carefully you will be able to identify the chord that was not composed by Haydn. The chord selected by the author breaks one of the logic statements revealed by macro analysis.

Of course finding the scurrilous chord would be even easier if the excerpt were played on a piano. If you are unable to identify the illogical chord, of course you can always cheat and peek at the complete analysis of the Haydn Menuet a few pages back.



Example 9. Excerpt from Haydn Menuet containing one "mistaken" chord.

Approaches to Tonal Music in Theory Textbooks

Current music theory texts for college level courses tend to utilize similar approaches and follow analogous strategies. To understand these tactics a summary of each helps in understanding the present methods.

Voice Leading

By far the most common strategy is the teaching of voice leading in a chorale-like style, writing voice-by-voice and chord-by-chord until completed. Gaining a solid knowledge of voice leading in tonal music is probably more important than any other undertaking at the undergraduate level. The stylistic do's and don't's for eighteenth-century style music is often perplexing and confusing to students who are unfamiliar with vocal style Bach chorales. The negative rules (don't write this, etc.) abound and positive rules are not always helpful.

Thus, perseverance is required in mastering the various techniques of eighteenth-century style. Working with the smallest units of music such as voice leading or part writing, students do not always see a larger picture and fail to understand that the minutiae is at the lowest of the building blocks and must create a sound foundation for the larger units that are discussed later.

Analysis

Along with the voice-leading compositional strategy is an analytical technique that asks students to identify chords, their position, and their function. Instead of writing the chords, students learn to identify them through analysis. This technique is considered easier than voice leading, and it is possible to scan greater amounts of music in this man-

ner. The emphasis in this style of analysis focuses on the small unit followed by small unit in a manner similar to voice-leading studies.

Species Counterpoint

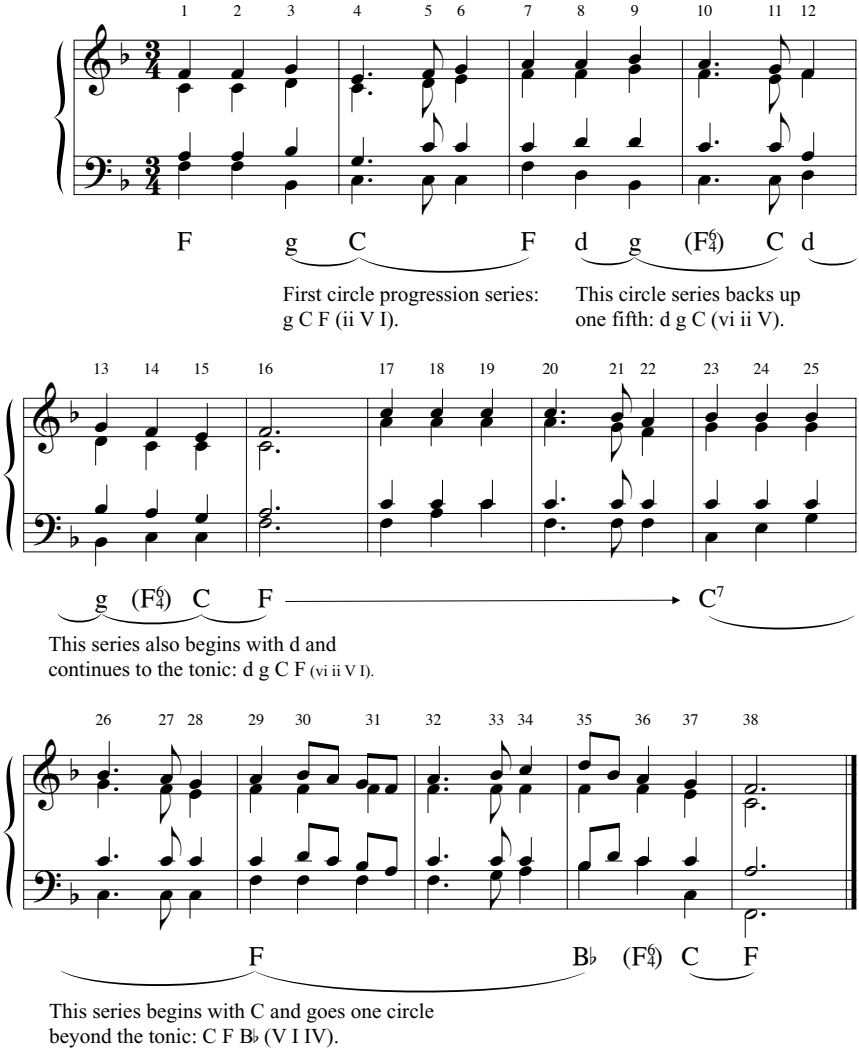
Sometimes, species counterpoint is easier for students because it combines counterpoint with voice leading and melodic preparation. All three are indeed interdependent. The approach through species counterpoint, is more humane because it is presented in an orderly manner and has a built-in safety valve that, if followed correctly, will assure acceptable melodies. Not many texts support this approach. Johann Fux developed species counterpoint (1725) which was studied by Mozart, Beethoven, Brahms and a large number of other eighteenth-, nineteenth-, and twentieth-century composers and theorists.

Macro Analysis

Not intended to take the place of voice-leading or any other pedagogical strategy, macro analysis is a recent analytical procedure, not in conflict with the other three procedures mentioned above, that may be used with any current text book. Macro analysis developed gradually as a simple and rudimentary way to analyze music for undergraduate students. In contrast to the methods used to teach voice leading, macro analysis can be applied to large sections of music, and expose compositional patterns that often escape other techniques. Macro analysis is designed to bring out stylistic and compositional traits not usually unearthed by other means. Since macro analysis and voice leading do not conflict or overlap, it is quite possible to teach both on alternate days of the week in a prepared schedule. Furthermore, it is also acceptable to apply both systems simultaneously to the same composition.

Macro analysis helps students understand the big picture and some claim they are able to memorize music faster and with more understanding. Putting a composition together restores student's faith in music as a clear and highly organized art that can be grasped and appreciated by those who wish to do so. Macro analysis points out the exquisite logic that lies just below the surface of every tonal composition.

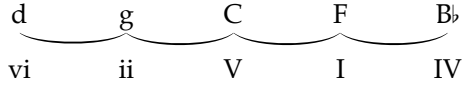
To introduce macro analysis, selecting a familiar composition helps students. There are few well-known works better for introducing macro analysis than *America* (example 10).



Example 10. Carey, *America*.

To begin, some of the most obvious facts revealed are:

1. There is only one chord, the very first, that does not begin or end a slur. All others are part of a circle series:



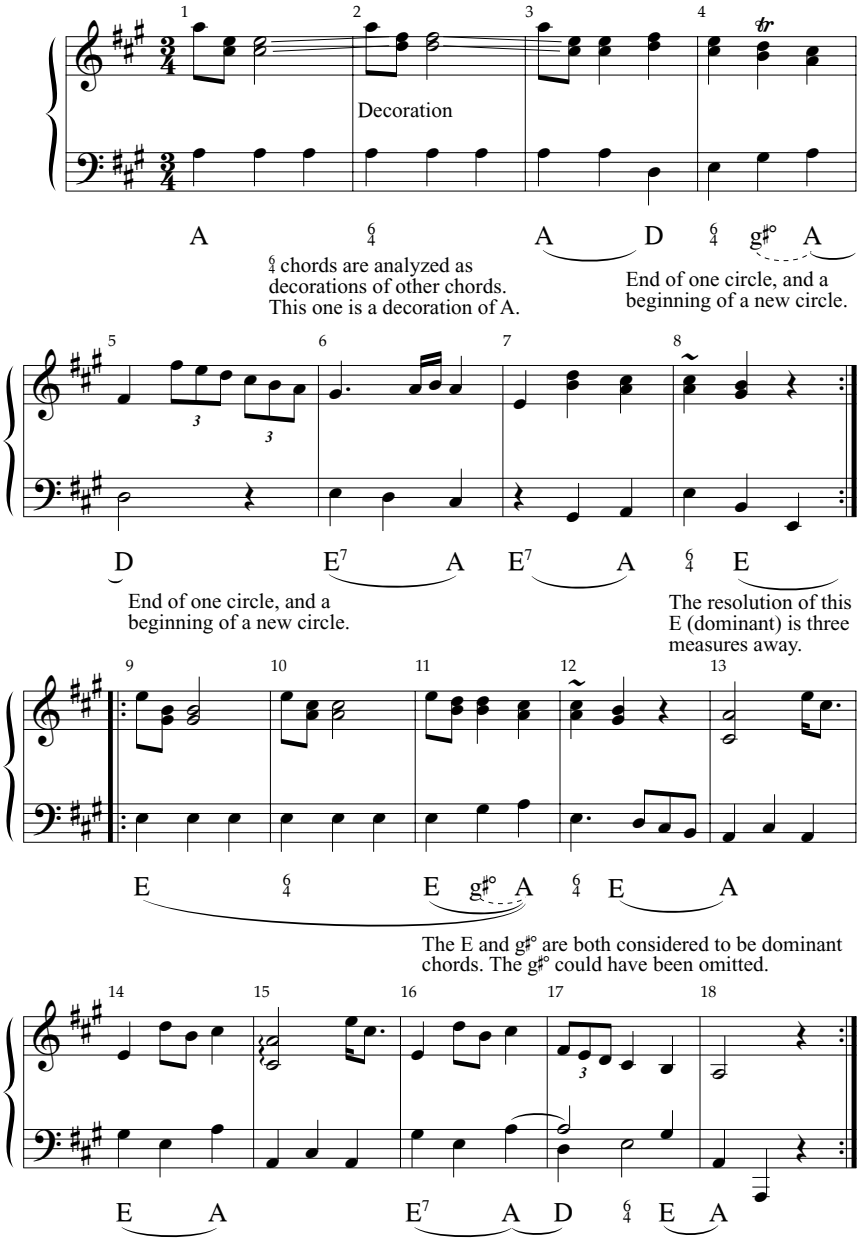
This means that, in this composition, d always proceeds to g, g always proceeds to C, C always proceeds to F, and on one occasion, F proceeds to B♭. A very large number of short songs contain the same dominance of circle progressions.

2. The use of five different roots exceeds the numbers typically found in songs of this size and type. Most often folk songs and similar small compositions of this type contain only three different roots.
3. The song is very tightly structured with non-circle progressions positioned only between circle series.
4. The two phrases, one of six chords and one of eight chords (chords 1 to 16 and chords 17 to 38), are created in length by the words and syllables. In the tonal profile which follows, the circles enclosed in bold lines indicate perfect authentic cadences and the end of each phrase.

Circle Series:	**d**	**g**	**C**	**F**	**B♭**
Analysis Symbols:	**vi**	**ii**	**V**	**I**	**IV**
Chords: 1				F	
3–7		g	C	F	
8–11	d	g	C		
12–16	d	g	C	F	
23–35			C^7	F	B♭
37–38			C	F	

Tonal Profile of Carey's *America*.

A slightly more challenging composition that may be used as an introduction to macro analysis is the Menuet movement from Haydn's Piano Sonata in A Major, Hob. XVI/5 (example 11). It includes both dominant and leading-tone chords that possess related progression function, and provides excellent practice for the application of macro slurs. This Menuet includes a discernible dominant prolongation that is made clear by the macro analysis. There are also several six-four chords that require careful determination when assessing the harmonic structure of the movement. Observe the macro analysis which follows.



Example 11. Haydn, Piano Sonata, Hob. XVI/5, II: Menuet. All of the chords in this composition are part of one or another slur. All E, E^7, and g♯° chords resolve to A. Since A is the tonic (end of slurs), a new set of slurs must be initiated.

From analyzing the circle progressions as units, some of the following exceptional bits of logic become available:

1. The E triad (V) is always followed by the A triad (I) throughout.
2. All triads or seventh chords in the composition are part of one circle progression or another. This demonstrates the importance of circle progressions and the tight logic that holds the composition so economically structured.
3. The entire movement (Menuet) contains only three different chords: $E^{(7)}$, A, and D. Remember that the g♯° is a part of E^7:

$$\begin{array}{lcccccc} E^7 & = & E & G\sharp & B & D \\ g\sharp^\circ & = & & G\sharp & B & D \end{array}$$

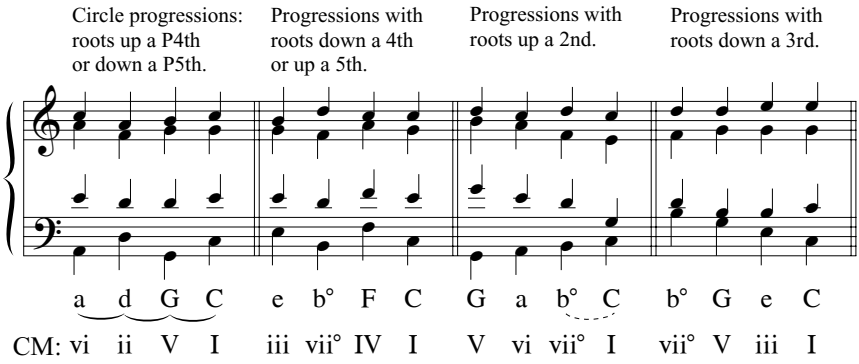
4. The strongest possible cadence (perfect authentic) occurs only once and is saved for the final phrase.
5. All of the $\frac{6}{4}$ (second inversion) chords decorate either the tonic (A) or the dominant (E or g♯°).
6. The third phrase (measures 13–18) would normally contain only four measures, but the first two measures are repeated.
7. To summarize the Menuet, there are a few surprises, and the tight and incessantly repeated circle is typical of many works by Haydn.

Circle Series:	**E**	**A**	**D**
Analysis Symbols:	**V**	**I**	**IV**
Measures: 1–3		A	D
4–5	g♯°	A	D
6	E^7	A	
7	E^7	A	
8–11	E	A	
11	g♯°	A	
11	E	A	
12–13	E	A	
14	E	A	
16–17	E^7	A	D
17–18	E	A	

Tonal Profile of Haydn's Menuet from Piano Sonata, XVI/5.

Forward Movement

Monitoring circle progressions is the most accurate way in which to analyze music. In tonal music, macro analysis is based on the assumption that circle progressions—chords moving by descending P5ths or ascending P4ths—create the impression of forward movement. Play each of the types of chord relationships found in the example that follows. The first series of four chords, where roots are a P4th above or P5th below, represents forward motion. Most musicians admit to some kind of forward movement, progression, or activity toward a goal whether or not they have experience with macro analysis.



Example 12. Harmonic Progressions.

Some philosophers have drawn, in music, a number of parallels that follow life's triumphs and depressions. The circle progression (the first series of four chords above) triumphs over all other progressions.

Non-circle Types

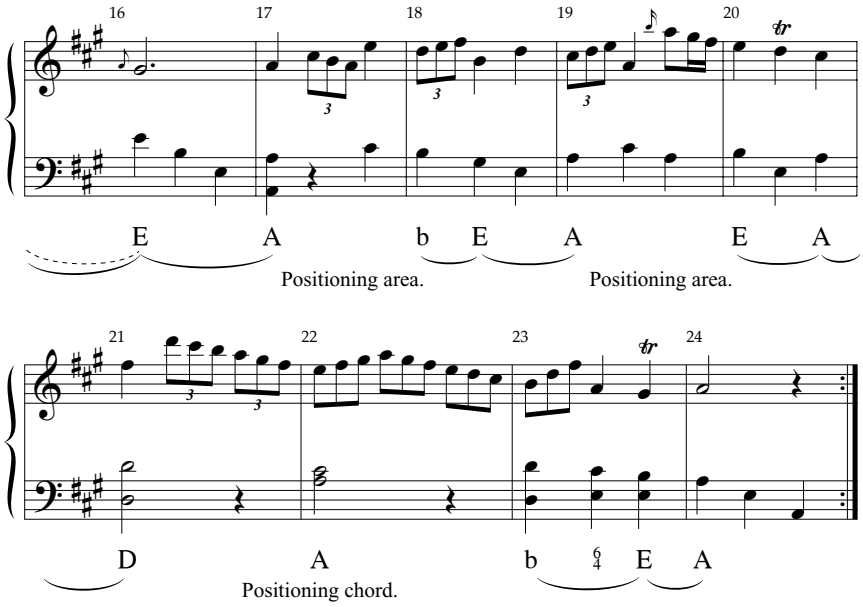
This theory of tonal music, macro analysis, depends heavily upon interruption of circle series. A composition containing only circle progressions, void of interruption, would be quite monotonous and lack spontaneity. There would be no opportunities to cadence and permit a composer to point the music in another direction (possibly a modulation).

Since macro analysis was developed so recently, I have, up to this point, discovered only four dissimilar non-circle sections. Each of these non-circle regions appear to have discrete characteristics and functional

traits that set them apart from others of the non-circle type. The four are: (1) positioning chords and areas, (2) modal effects or anti-circles (backward circles), (3) parallel movement, and (4) pre-dominant collections.

Positioning Chords and Positioning Areas

Perhaps the most common and easily identified non-circle is the positioning chord or area (positions or prepares for the beginning of a new series). The A triad in measure 22 of example 13 is a positioning chord that prepares for the circle series beginning in measure 23. After a target (which is the goal of a circle progression or a series thereof) is reached, composers alter the flow of music to begin another circle series in another direction. In the example below, the positioning area is not a chord but simply an area (from A to b in measures 17–18 and A to E^7 in measures 19–20). This type occurs at the end of each circle series.



Example 13. Haydn, Piano Sonata, Hob. XVI/12, II: Menuet, mm. 16–24

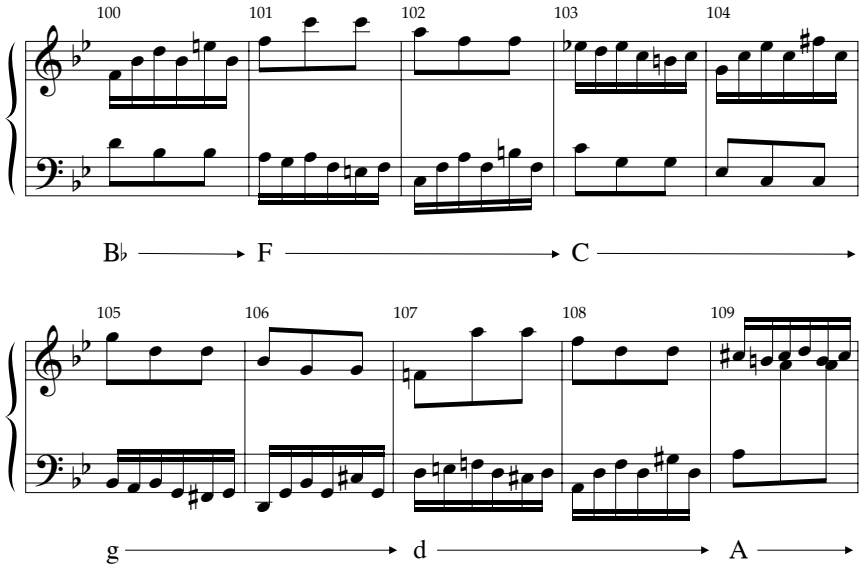
Modal Effect or Anti-Circle

The modal effect type of non-circle progression is relatively rare, and is found most frequently in music from the Baroque. Nicknamed the

"anti-circle" by students, it is so named because the chords occur in reverse order from circle progressions. These progressions lack the forward movement of the circle series.

Anti-circle:	C	G	D	A	E	B
Forward circle:	B	E	A	D	G	C

Some theorists believe anti-circles occur to allow descent within a composition and facilitate compositional variety. The effect is somewhat like the order of chords in modal compositions. As you will note from example 14, the key system during these passages is steadfastly maintained.



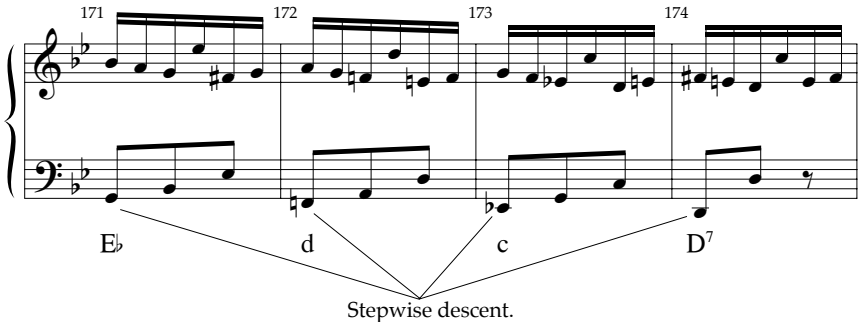
Example 14. Bach, English Suite III, Prelude, mm. 100–109.

When the above anti-circle chord roots are reproduced in reverse order, the result is a series of circle progressions. Despite the common, albeit reversed, relationships, the anti-circle series lacks the same forward motion as the circle series.

As written using ascending 5ths:	B♭	F	C	g	d	A
Backwards produces circle progressions:	A	d	g	C	F	B♭

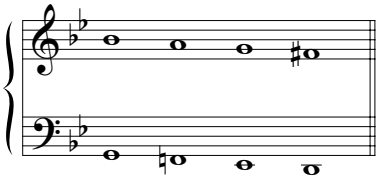
Parallel Movement

The parallel movement type of progression consists of passages in which chords move accompanied primarily by parallel movement, but on occasion change to similar motion. In this type of movement, at least two voices move in parallel, usually in 6ths or 3rds. Parallel 5ths are avoided by using first inversion and keeping the would-be perfect fifths inverted (as perfect 4ths). In the following example by Bach, linear descent accompanies the parallel motion while all voices follow in the same direction to generate a powerful forward effect.



Example 15. Bach, English Suite III, Prelude, mm. 171–174. Note the stepwise motion in the bass—no circles!

First inversion chords usually accompany this type of movement. In the above example, the first three chords appear in first inversion. A reduction of this passage reveals the parallel 3rds resulting from the use of a series of first-inversion chords (example 16).



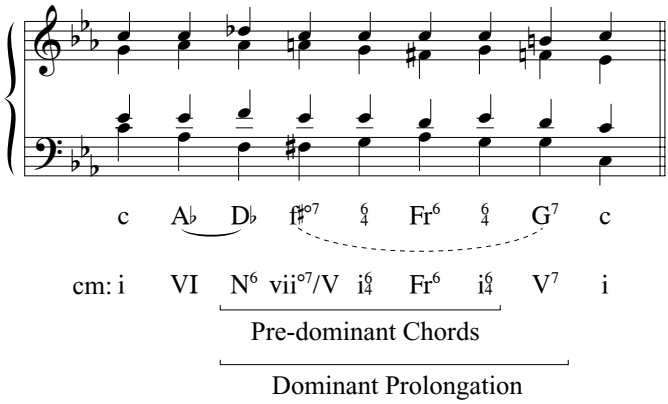
Example 16. Parallel Movement in 3rds.

Pre-Dominant Buildup

This type of non-circle movement occurs usually right before strong cadences, and exists primarily because of the very large variety of

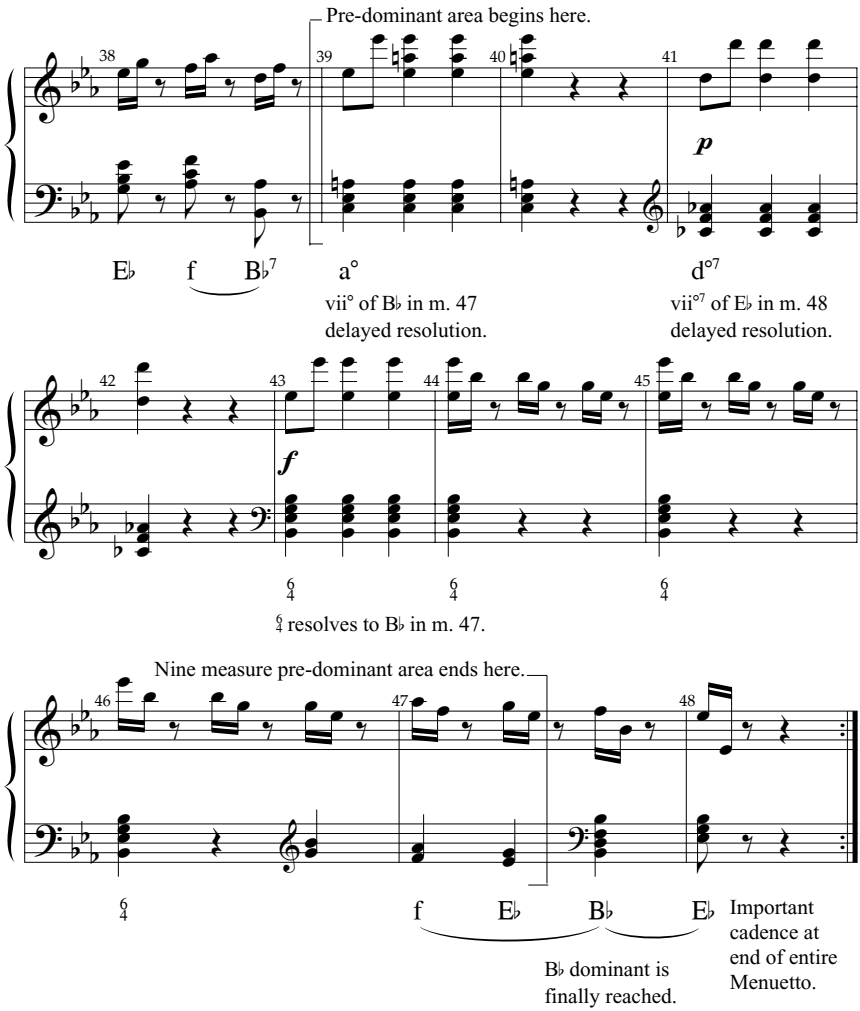
chords that naturally resolve to the V or V^7 chord. Anticipation and the forward thrust to move on to the dominant target makes this type of non-circle movement among the most unique devices established in tonal music.

The following illustration shows a large number of possible pre-dominant chords. As you will notice, all of the chords normally move to the dominant but not typically to each other. This example is provided to show as many as possible of the pre-dominant chords and to demonstrate how these chords are often first prepared by a circle progression. Also note that each pre-dominant chord sits in a row awaiting its turn to achieve inevitable release from tension.



Example 17. Pre-Dominant Buildup.

A typical example of a pre-dominant passage is the following excerpt from Haydn Symphony in E♭ Major, Hob. I/103 ("Drum Roll"). Measures 47–48 are the end of the Menuetto section and conclude with a perfect authentic cadence. A nine measure pre-dominant buildup begins in measure 39 and ends at measure 47. These nine measures contain no circles, and all of the chords, except one, resolve to the dominant (B♭ in measure 47). The six-four chord (second inversion) is prominent in this pre-dominant passage (measures 39–47).



Example 18. Haydn, Symphony, Hob. I/103, III: Menuetto, mm. 38–48.

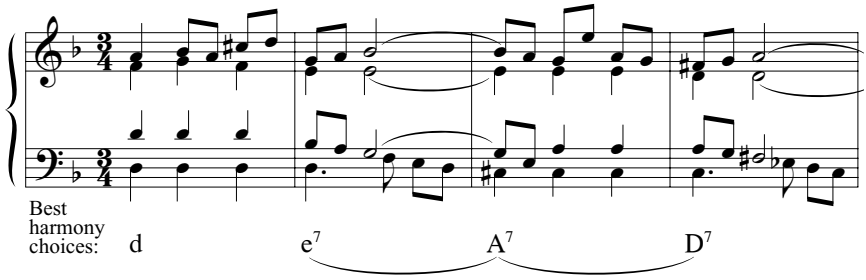
Where has the Melody Gone?

In discussing macro analysis, harmonic and melodic components are so intermixed that identifying the importance of each is frequently impossible and indeed superfluous. The prominent melody (in homophony), whether in soprano, alto, tenor, or bass, is always a component of the harmony. So, the relationship of the two is never remote.

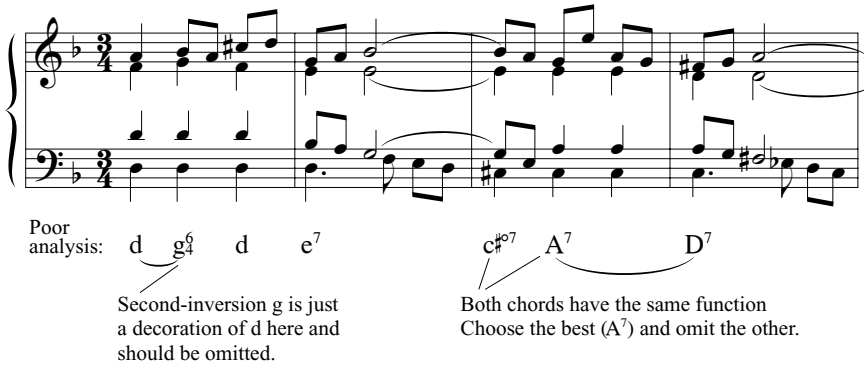
While a vi–ii –V–I series of chords can seldom identify the unique features of a melodic line simply because the same series may occur in a

setting of four or five different backgrounds, a four-measure melodic phrase in the soprano voice may indelibly identify a particular composition in an assortment of 5,000 other works of a similar nature.

As the originator of macro analysis, the mere question of melody versus harmony is not one that often comes to mind. Chords suggested by melodies are often difficult to determine. In the following illustration, note the second analysis that is labelled "poor." Inferior or confusing analyses are usually a result of failure to become familiar with the sound of the music.



Example 19a. Bach, French Suite 1, Sarabande, mm. 1–4.



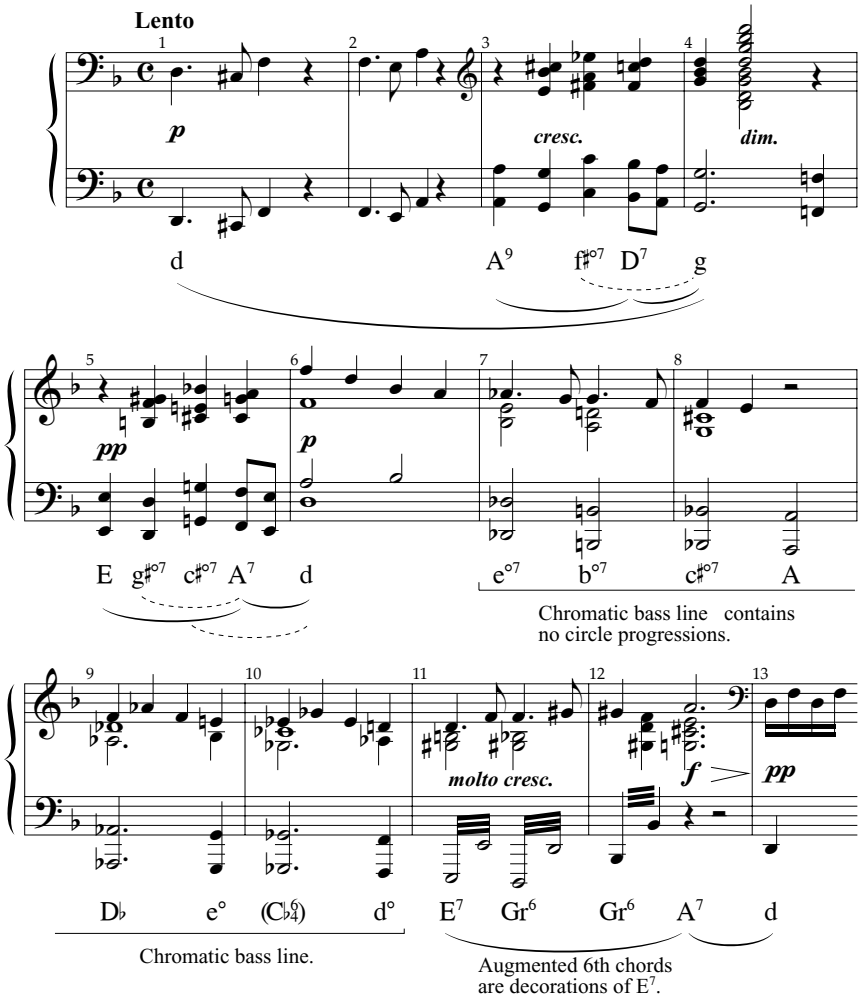
Example 19b. Bach, French Suite 1, Sarabande, mm. 1–4. Note that adding unnecessary chords often makes it impossible to follow the circle series (as it does in this example).

A different musician analyzing the example above, may disagree with the harmonic choices. If interpreted in a particular way, a different analysis might well occur. Certainly macro analysis allows for individual preferences.

The Impenetrable Chromatics of César Franck

Although Franck (born 1822) was a well-known fixture in the Paris musical scene during the Romantic period, his works are seldom discussed, and his compositional style is only occasionally described. One of his contemporaries characterized him as the "modulating machine."

His musical style is generally considered beyond the capability of undergraduate students, but with the clarity provided by macro analysis, it is possible to show the simple logic. The example below is the first thirteen measures of Franck's Symphony in D minor.



Example 20. Franck, Symphony in D Minor, I, mm. 1–13.

1. Despite the distinct Romantic style and the chromatic technique, the tonal profile below tells us that the Symphony in D Minor has its roots in the circle progressions of the Baroque and Classical periods.
2. The two diminished-7th chords, one following the other in measure 5 ($g\sharp^{\circ 7}$ and $c\sharp^{\circ 7}$), are similar to those found in measures 39–42 of the Haydn Symphony excerpt (example 18). The $g\sharp^{\circ 7}$ and $c\sharp^{\circ 7}$ have delayed resolutions to A (V) and d (i). These similarities are probably not just happenstance. Such delayed resolutions are found in other composers such as Beethoven and others of the Classical period.
3. The descending bass line in measures 7–10, creates a non-circle section. This same kind of non-circle section with characteristic stepwise bass is known in the works of Bach, Haydn, Beethoven, and probably in the works of many other composers. These compositional devices have been mentioned by Schenker and some other theorists, usually in relationship to melodic aspects.
4. The clarity and simplicity of macro analysis facilitates the nature of the work and reveals the basis of the composition.

Circle Roots:	**B**	**E**	**A**	**D**	**G**
Measures: 1–2				d	
3–4				D^7	g
3–4			A^9	$f\sharp^{\circ 7}$	g
5–6		$g\sharp^{\circ 7}$	A^7	d	
5–6		E	A^7	d	
5–6			$c\sharp^{\circ}$	d	
7–10		*Stepwise*	*Bass*		
11–13		E^7	A^7	d	

Tonal Profile of Franck's Symphony in D Minor, mm. 1–13.

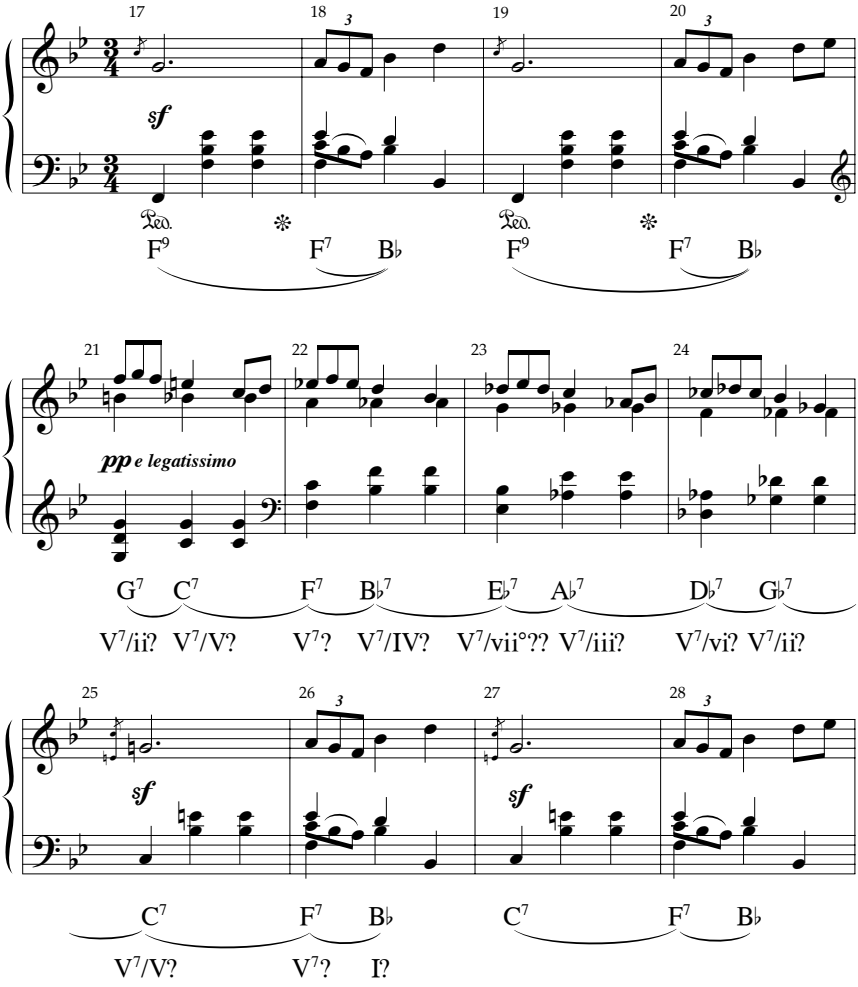
A Chink in the Armor of Modulation

As the study of undergraduate theory unfolds in the first and second years, the investigation of modulation in Baroque music, then to Classical, and finally to the Romantic period, modulation gradually becomes more tedious, awkward, and difficult to analyze. In the Baroque, moving from one key to another is a simple matter of shifting to related keys that contain common chords. The Classical period is almost as pre-

dictable, but modulations in the Romantic era are often more complex and intricate, but are more sophisticated in regard to musical logic.

Remember that "modulation" is a term concocted by theorists and is not very well understood by the ear. When we listen to music, no matter how complicated the analysis may be, we follow the circle progressions instinctively. When the circles break down, and the composer follows on with some kind of non-circle area, we are already prepared for the non-circles many times, and we continue to listen without confusion.

Consider the following excerpt from Chopin's Mazurka in G Minor, op. poth. 67, no. 2.



Example 21. Chopin, Mazurka in G Minor, op. poth. 67, no. 2, mm. 17–28

In the Chopin excerpt (example 21), the measures from 21 to 26 contain an uninterrupted chromatic circle series from G^7 in measure 21 to B♭ in measure 26. No current theory text book will prepare a student for what happens in these measures, but macro analysis explains it easily. The passage (measures 21–26) that seems to confound us as theorists does not create problems for our ears. The circles lead us from one place to another without difficulty. Measures 21–26 contain 9 secondary dominants, one following after the other. Our ears follow the circles with ease although our brain, when we view the music score, constantly searches for logic. Our ears have no idea where the circles will end, but are content to listen until a logical end occurs.

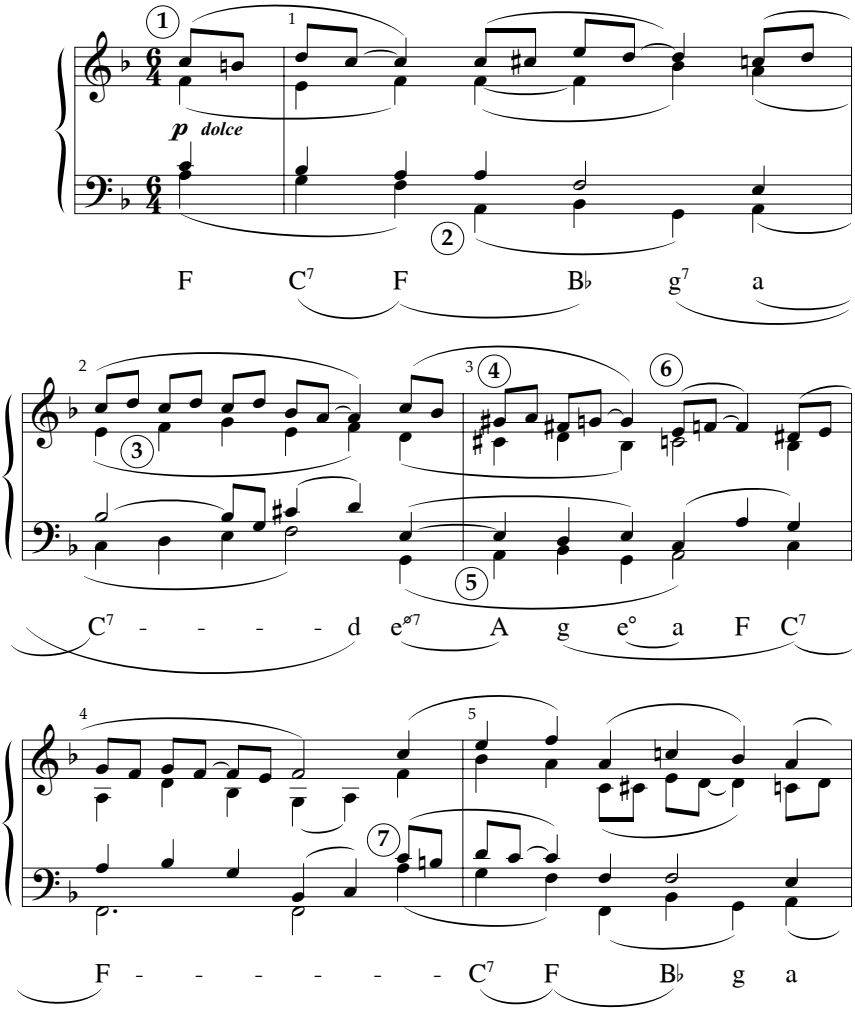
In many ways we have made analysis too difficult for ourselves. For those of you that are relatively new to macro analysis, my suggestions will seem incomprehensible. Do not make attempts to convert macro letter names into roman numerals. The target in this Chopin excerpt is the B♭ triad in measure 26. Measures 26–28 imply the key of B♭ major since the two B♭ triads are targets (chords that end circles). These targets create points of rest, settlement, and resolution. The letter names already provided sufficient answers to the nature of the composition at this point.

For those who are neophytes and have been recently introduced to macro analysis, no finesse or information will be lost if the older traditional method of treating modulation is employed until more sophistication regarding macro analysis is achieved.

The macro analysis of Chopin's Mazurka exposes the utter simplicity even of the most difficult passage in the entire composition, measures 17–28. We should not allow ourselves to become involved in such absurdity as trying to explain the function of each secondary dominant in the string from measures 21–26. We know that in the uninterrupted series, all of the chords are aimed at the final chord in the series (B♭). Is it indeed necessary to explain the purpose of each individual chord?

The High Romantic Period and Brahms' Motives

The following excerpt from a late work by Brahms, "Es ist ein Ros' entsprungen," from *Eleven Chorale Preludes,* op. 122, composed in 1896, still shows the unmistakable trademark of tonal music from its beginning in the Baroque. Notice the overlapping circle slurs identifying multiple circle progressions occurring simultaneously.



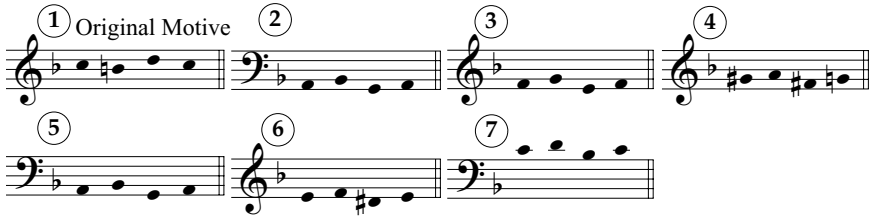
Example 22. Brahms, "Es ist ein Ros' entsprungen," op. 122, mm. 1–5

The following five observations point out some of the interesting elements in the above chorale prelude excerpt.

1. The consistent stream of circle progressions is still present in a composition written just four years before the dawn of the twentieth century. Two hundred years were unable to wipe out the single most easily identified feature of tonal music—the circle progression.
2. The excerpt is clearly in F major.
3. But, sometimes, like in measure 3, the primary circle (g⌣C7) is ornamented or decorated with other chords (e⌣a F) resulting in a dis-

guised primary circle (g e a F C^7). This way the circles are not so prominent and cannot be heard as conspicuously as when they occur one after another.

4. In this chorale prelude, Brahms includes a four-note motive that has the melodic shape of changing tones. All of the derivatives are in reverse order from the original motive (example 23).
5. The entrance of motives sometimes interferes with the flow of circles—thus creating the decorated circles.



Example 23. Motives in "Es ist ein Ros' entsprungen." Each of the derivatives are in reverse order from the original motive.

Why is Macro Analysis Useful?

The term *macro* means large and refers to longer sections or units of music, not from one chord to the next, but from the beginning to the end of an uninterrupted set of circle progressions. Consequently, instead of exclusively analyzing only adjacent chords like f♯ to b, we will analyze the larger units that consist of an uninterrupted string consisting of f♯ b E A. Similar to a panoramic view of a large city from a continental jet, one may now distinguish the business section from the neighborhoods and the large mansion area from the ghettos. In music, this new perspective reveals larger circle systems we were unaware of before.

Traditional analysis monitors the chord-by-chord, or small unit-by-unit movement. When we listen to music, we tend to grasp larger units because we are not restricted to reading and digesting every single thirty-second note. We may hear sixteenth notes per beat but simply group each beat as one single unit. By reading the notes of that same passage, we might eventually come to the same conclusion, but, when we analyze a composition with our ears only, we pick up sound relationships we did not even consider when looking only. Our eyes do not always pick up the subtle and discriminating paradigms.

By monitoring circle progressions (marking them with slurs), much can be learned about a composition that would never have come to light in any other manner. By analyzing the circle progressions, it is possible to uncover remarkable examples of musical logic.