THE ORIGINS

Introduction

> Harmonic analysis is the study of the individual chords or harmonies in a piece of music, together with their use in succession to form larger units of phrases, periods, sections, or whole compositions. *1

The foregoing definition is an accurate reflection of what is commonly meant by the term "harmonic analysis". It is general enough to include methods which are specifically directed toward the analysis of traditional tonal music, as well as those which have extended that process to atonal or twelve-tone works. *2 It also reflects a conception of harmony which is based on certain eighteenth-century attitudes. First, it overemphasizes the role individual chords and their immediate

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connections play in the unfolding of a musical composition. This preoccupation with harmony at the level of chord-to-chord is evident today in those analyses which rely on roman numerals as the sole means of identifying chordal successions. Second, it implies a separation of harmony from counterpoint, that is, a separation of chord from voice-leading. It is just this conception of harmony to which Schenker objected so strongly.*3 But despite his efforts, the general attitude toward harmony and harmonic analysis has remained much the same as it was two hundred years ago.

The purpose of this paper is to examine the origins of harmonic analysis as it is understood and practiced today. This means an investigation of the earliest attempts to explain the harmonic structure of compositions and the theories which these

"analyses" represent. The first analyses to be considered are those of Jean-Philippe Rameau (1683-1764), since his theories are generally regarded as the source of our modern concept of harmony. Our investigation ends with the analyses of Gottfried Weber (1779-1839), since his use of roman numerals is the model for current methods of notating harmonies in relation to a tonal center.

I Rameau and the Fundamental Bass

One of the most important features of Rameau's theoretical writings is his attempt to show how all chords used in the music of his day are related to one of two fundamental harmonies. *4 These harmonies are the perfect triad, which can be either major or minor, and the dissonant seventh chord, which is derived from the triad by the addition of a major or minor third. All other chords are shown to be derived from one of these two by inversion or by supposition. According to Rameau's definition of chord inversion, all chords related by this principle represent the same harmony and thus have the same root; this concept is an important contribution to the development of harmonic theory. The chords of supposition are those which are formed by the addition of a third or fifth below the root of a dissonant seventh chord. This process of derivation was the direct result of Rameau's effort to explain the origin of chords larger than an octave, the limit he had set for fundamental chords. As will be seen in the following discussion, this concept is the result of Rameau's interpretation of the ninth and the eleventh. He regarded these as harmonically rather than melodically generated, thus initiating a separation of harmony from counterpoint. *5

To demonstrate his principles of harmony, Rameau invented the fundamental bass [basse fondamentale]. This hypothetical bass line is derived from the sounding parts by taking the roots of the fundamental harmonies from which each successive chord is generated. The advantage of this abstract bass is that it indicates the relationship between successive chords (the harmonic progression) as well as the root of each generating harmony. In his TRAITÉ DE L'HARMONIE (1722), Rameau provides the following rules for the progression of the fundamental bass:

> Thus, the entire progression of the fundamental bass should involve only these consonances [the fifth and its inversion, the fourth; the third and its inversion, the sixth]. Dissonance may sometimes oblige us to make

> the bass ascend only a tone or semitone. In addition to the fact that this arises from a license introduced by the deceptive cadence. . .we may note that this ascending (but not descending) tone or semitone is the inversion of the seventh heard between the two sounds forming the tone or semitone.*6

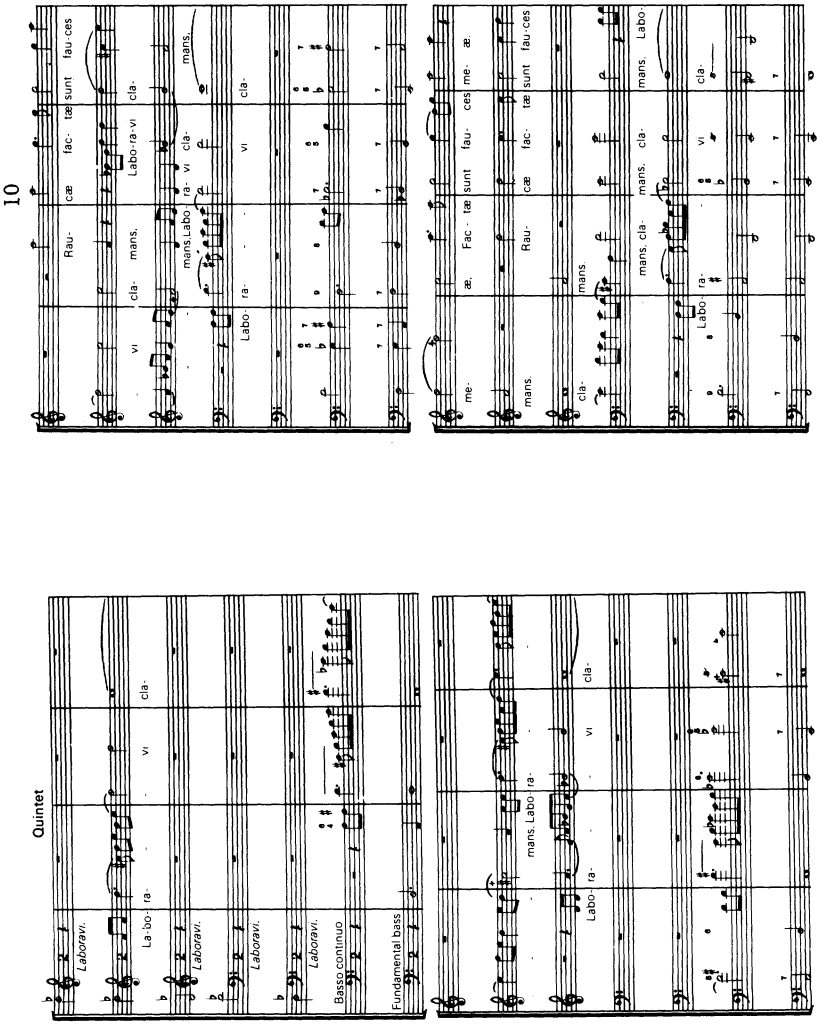
Rameau's use of this device to explain the harmonic structure of musical compositions (or parts of compositions) can be considered the beginning of harmonic analysis. However, it should be pointed out that his intention was not to analyze specific pieces of music, but rather to demonstrate the validity of his harmonic theories. In fact, there are only two instances in all of his theoretical works where the fundamental bass is given for an entire composition. The first of these—an analysis of his own motet, Laboravi Clamans—appears in his TRAITÉ DE L'HARMONIE.*7 The other is an analysis of the Monologue D'Armide from Lully's opera, ARMIDE; it appears in the NOUVEAU SYSTÈME DE MUSIQUE THÉORIQUE (1726).*8 For the sake of space, only the first of these will be considered here.

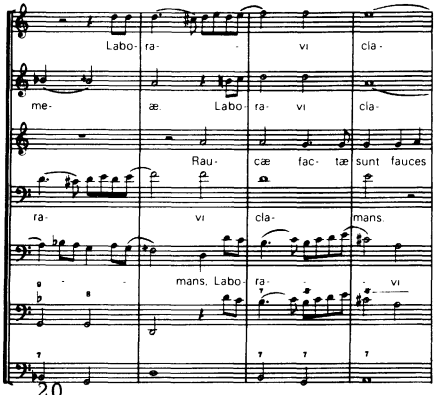
The first part (mm. 1-54) of Rameau's analysis of his Laboravi Clamans is reproduced in Example 1.*9 Examination of the fundamental bass reveals that, for the most part, the harmonic progressions conform to the rules quoted above. However, in two places (mm. 5-6 and 32-3) Rameau indicates descending progressions by step; this directly contradicts his own rules. At other places in the analysis, this same progression is avoided by applying his famous rule of double employment of dissonance. This rule allows for two different interpretations of the six-five chord on scale degree four in any key, depending upon the progression. When it progresses to the dominant [dominant-tonic]—as here in mm. 6, 8, 11, 23, 37, and 41—it is interpreted as the first inversion of the seventh chord on scale degree two in that key. The fifth, as the seventh of the fundamental harmony, is the dissonance, and the resulting progression is by descending fifth. However, when it progresses to a tonic chord—as here in mm. 22, 40, 48, and 52—it is interpreted as a fundamental harmony, and the sixth, rather than the fifth, is the dissonance. Thus the resulting progression is by ascending fifth, rather than by descending second. This last progression is called an "irregular cadence" by Rameau.*10

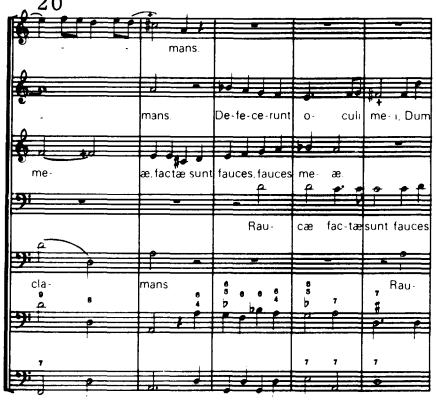
A clear example of double employment appears in mm. 22-23. The six-five chord on G in m. 22 is interpreted as a fundamental harmony, while the same chord in the following measure is

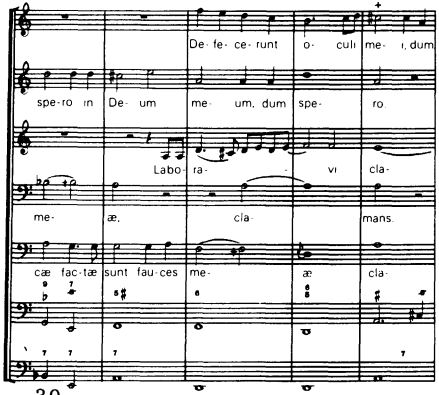
EXAMPLE 1

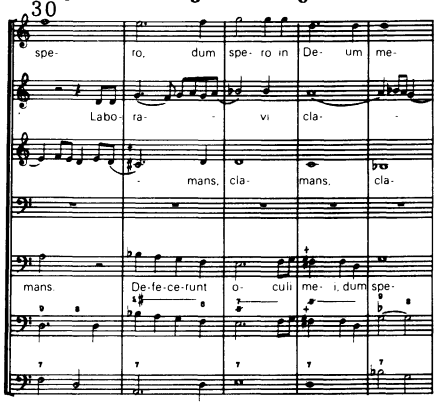
Rameau's Analysis of his Motet, Laboravi Clamans

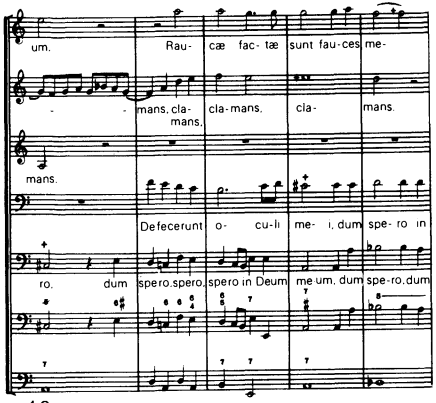


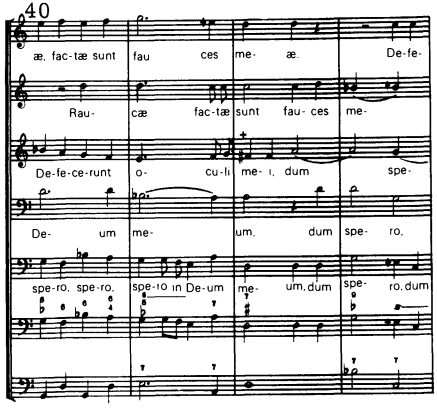

Labo- ra- vi cla-
me- æ. Labo- ra- vi cla-
Rau- cæ fac- tæ sunt fauces
ra- vi cla- mans.
mans. Labo- ra- vi

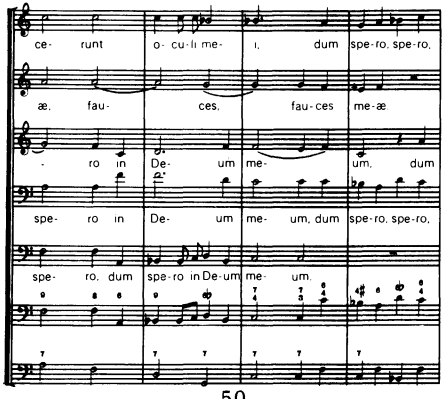

20
mans.
mans. De-fe-ce-runt o- culi me- i, Dum
me- æ, fac tæ sunt fauces fauces me- æ.
Rau- cæ fac-tæ sunt fauces
cla- mans. Rau-

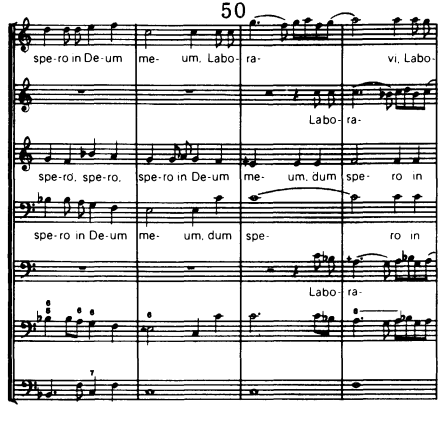

De- fe- ce- runt o- culi me- i, dum
spe-ro in De- um me- um, dum spe- ro.
Labo- ra- vi cla-
me- æ, cla- mans.
cæ fac-tæ sunt fau-ces me- æ cla-

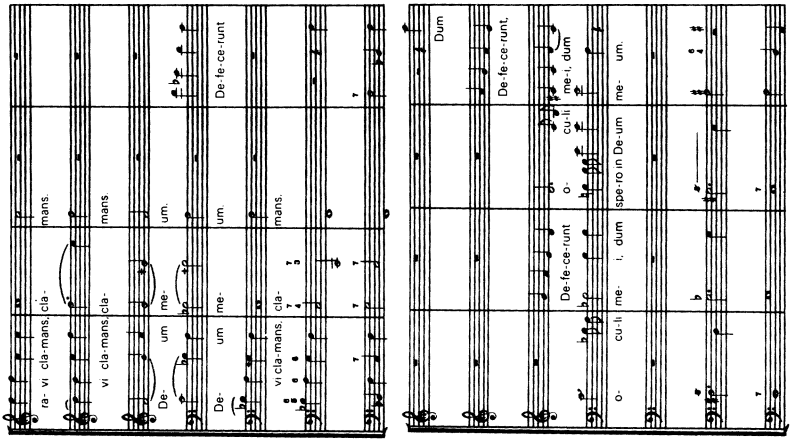

30
spe- ro, dum spe- ro in De- um me-
Labo- ra- vi cla-
mans, cla- mans, cla-
mans. De-fe-ce-runt o- culi me- i, dum spe-


um. Rau- cæ fac- tæ sunt fau-ces me-
mans. mans, cla- mans, cla- mans.
mans.
Defecerunt o- cu-li me- i, dum spe- ro in
ro. dum spero, spero, spero in Deum me-um, dum spe-ro, dum


40
æ, fac-tæ sunt fau ces me- æ. De-fe-
Rau- cæ fac-tæ sunt fau- ces me-
De-fe-ce-runt o- cu-li me- i, dum spe-
De- um me- um, dum spe- ro,
spe-ro, spe-ro, spe-ro in De-um me- um, dum spe- ro, dum


ce- runt o- cu-li me- i, dum spe-ro, spe-ro,
æ, fau- ces, fau-ces me-æ
- ro in De- um me- um, dum
spe- ro in De- um me- um, dum spe-ro, spe-ro,
spe- ro, dum spe-ro in De-um me- um.


50
spe-ro in De-um me- um, Labo- ra- vi, Labo-
Labo- ra-
spe-ro, spe-ro, spe-ro in De-um me- um, dum spe- ro in
spe-ro in De-um me- um, dum spe- ro in
Labo- ra-


ra- vi cla-mans, cla- mans
vi cla-mans, cla- mans
De- um me- um.
De- um me- um. De-fe-ce-runt
vi cla-mans, cla- mans.
Dum
De-fe-ce-runt, De-fe-ce-runt
o- cu-li me- i, dum
o- cu-li me- i, dum spe-ro in De-um me- um.

explained as the first inversion of an E^7 chord in d minor. A similar situation occurs in mm. 40-41.

Another important feature of Rameau's theories is his attempt to explain the harmonic origin of notes of decoration. Examination of the fundamental bass in Example 1 reveals, for instance, that he interprets suspensions as two separate harmonies—the chord of suspension and the chord of resolution. In m. 10, for example, the 7-6 suspension is shown as two separate harmonies in the fundamental bass. Here the 7 (a^2) is given the status of a note fundamental to the harmony, rather than that of a note which displaces the following 6 (g^2). Such an interpretation is possible only by accepting the premise that melody has its roots in harmony.

Most chords of suspension are explained by Rameau as arising from the process of supposition. Thus a ninth chord is shown to result from the addition of a third below a seventh chord; its root is the same as that of the seventh chord from which it is derived. (His interpretation of 9-8 suspensions can be seen in mm. 9, 12, 16, 20, 30, 34, and 44; ninth chords followed by changes in the bass occur in mm. 25, 43, and 45.) And an eleventh (fourth) chord is formed by the addition of a fifth below a seventh chord; its root is also the same as that of the chord from which it is derived. This explains his interpretation of the seven-four chord in m. 53. *11

Rameau's explanation of the chord of the augmented fifth is the same as that of the ninth chord, except that it can occur only on the mediant of a minor key. It is formed by the addition of a third below the dominant seventh chord, whose root it assumes. This explains his interpretation of the linear 5♯-6 progressions in m. 4 and mm. 26-27.

Rameau's explanation of suspensions reflects his conception of harmony as being separable from counterpoint. The chord, as isolated from its context, is considered synonymous with "harmony"; this is a fundamental error in his approach to musical syntax. Unfortunately, his theory of supposition had a strong influence on other theorists of the eighteenth century. *12 In fact, traces of this theory and the concept it represents are still present in this century.

II Kirnberger's Contribution to Harmonic Analysis

The next theorist to make a significant contribution to the development of harmonic analysis was Johann Philipp Kirnberger

(1721-1783). The focal point of his harmonic theories is his definition of the distinction between essential [wesentlich] and non-essential [zufällig] dissonance. The latter (e.g., a suspension) is defined as a dissonance which stands in the place of a consonance; its resolution normally occurs before a change of harmony. By contrast, an essential dissonance is one which does not stand in the place of a consonance, and thus should be considered as part of the harmony. The only essential dissonance is the seventh (or an interval which represents the seventh in the inversion of a chord); its resolution occurs with a change of harmony. This distinction is an important part of his system of chord classification. According to this system, all chords used in music are derived from two fundamental harmonies, the consonant triad and the dissonant essential seventh chord. All other chords are related to these two by one or both of the following processes: (1) inversion; and (2) displacement of one or more members of a fundamental chord (non-essential dissonance). *13

From this brief description of Kirnberger's method of classifying chords, it is clear that he was influenced to some extent by Rameau's ideas. He incorporated the theory of chord inversion into his own system and, like Rameau, related all chords to two fundamental harmonies. Despite these similarities, there are a number of important differences between their theories. For example, their approaches to the phenomenon of suspension are totally different. According to Rameau's explanation of this type of dissonance, the chords of suspension and resolution are two separate harmonies. Kirnberger, however, interprets the two chords as representing a single harmony. This is an important distinction. Their theories also differ greatly on a more abstract level. While Rameau sought to find a mathematical-acoustical explanation for musical phenomena, Kirnberger followed in the practical tradition of the figured bass school. It is because of this conceptual difference that Kirnberger was an outspoken critic of Rameau's theories, despite his obvious debt to them. *14

Kirnberger also borrowed the concept of the fundamental bass from Rameau. Quite naturally he did not utilize it as Rameau had, but rather to demonstrate his own principles of harmony. *15 Thus, it is possible to obtain a clear picture of the differences between their harmonic theories simply by comparing their analytic applications of this device.

Kirnberger's Analysis of his Fugue in e minor

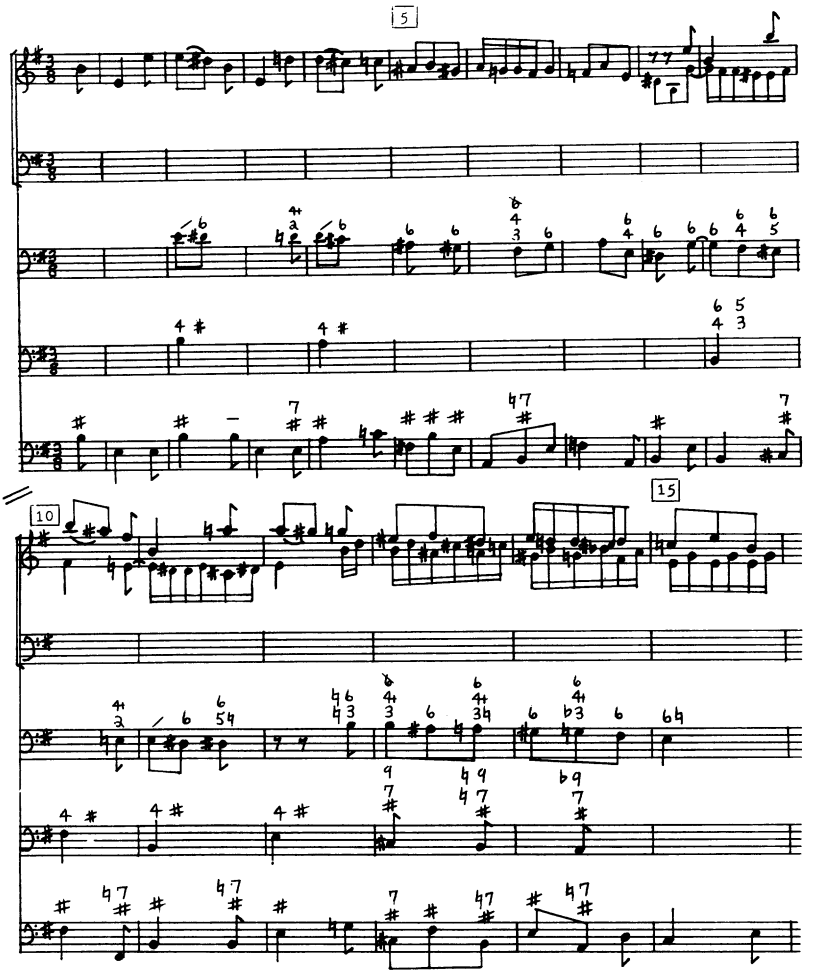
This analysis was originally published at the end of the first volume of Kirnberger's DIE KUNST DES REINEN SATZES (1771); it is reproduced in Example 2a. The analysis itself is presented in the form of three bass parts added below the actual composition. The first of these is a figured bass, and it represents Kirnberger's interpretation of the chords as they appear in the music. Below that he indicates the non-essential dissonances (suspensions) and unauthentic [uneigentlich] seventh chords. *16 At the bottom is the fundamental bass, which represents his interpretation of the harmonic structure of the fugue. The basic principles of his system of chord classification are clearly displayed by this method of presentation.

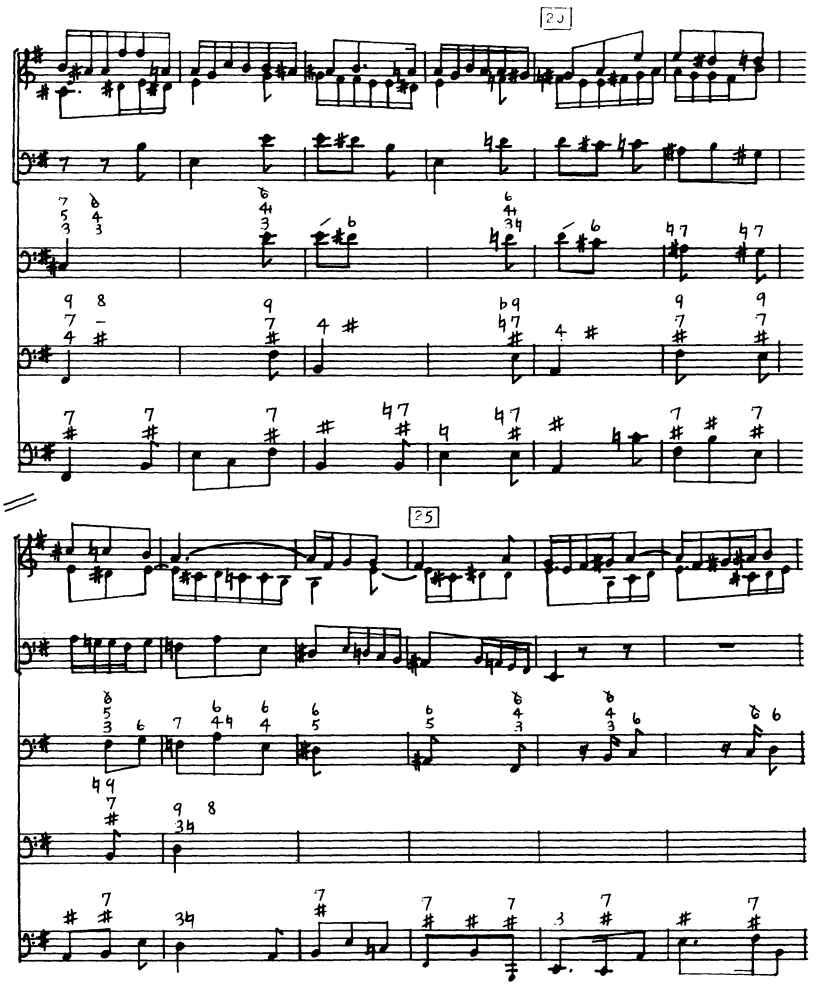
An unusual feature of the fugue itself is the fact that it does not contain a single modulation; this is surprising, even in a composition of this length. Another peculiar feature is Kirnberger's interpretation of the harmonic implications of the fugue subject. Most striking is his interpretation of the melodic succession c♮-a♯ in mm. 4-5. His "harmonization" of the c♮ results in the direct progression of an A major to a C major triad, which is unusual in the style. The C major chord is related to the following one by the interval of a diminished fifth. Although this progression could easily have been avoided, apparently he preferred it to other possibilities for that situation *17; it appears consistently throughout the composition. (See mm. 12-13, 20-21, 32-33, 40-41, and 51-52.) However, his interpretation of mm. 6-7 does not remain the same in subsequent statements of the subject. Compare m. 6 to m. 14 or m. 34, and m. 7 to m. 23 or m. 43. The ascending root progression by step (mm. 6-7) becomes a descending one in mm. 14-15, 22-23, 34-35, 42-43, and 53-54.

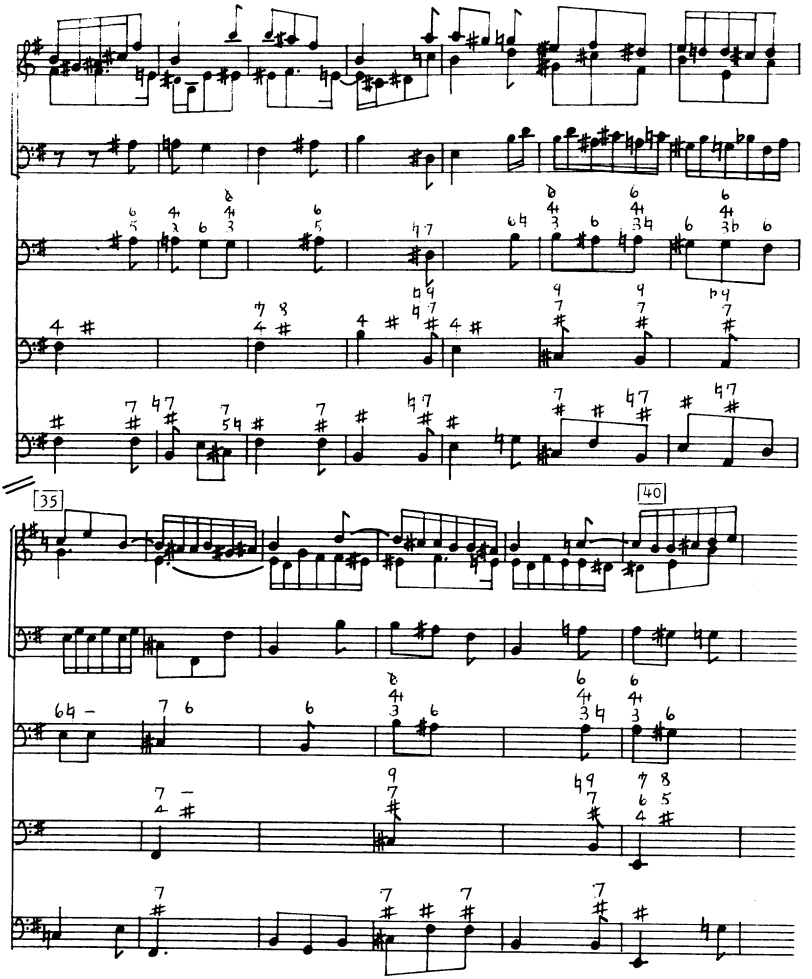
A different interpretation of the opening measures of this fugue was given some years later by A. F. C. Kollmann in his treatise, A NEW THEORY OF MUSICAL HARMONY (1806); it is reproduced in Example 2b. Here Kollmann avoids the root progression by diminished fifth between mm. 4 and 5. His treatment of the a♯ as an appoggiatura follows naturally after the preceding suspensions in mm. 2 and 4. However, this interpretation would not have been possible for Kirnberger, since he required that all non-essential dissonances be prepared. This is a weak point in Kirnberger's system of chord classification.

EXAMPLE

2a Kirnberger's Analysis of his Fugue in E Minor




23
25


35
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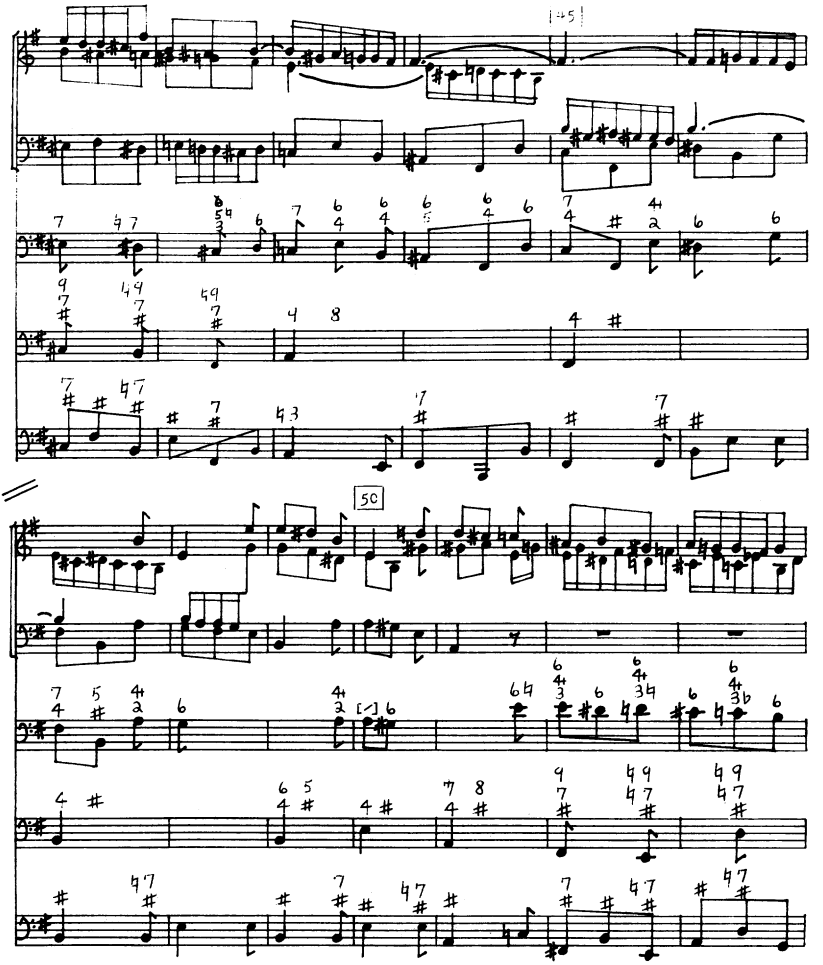
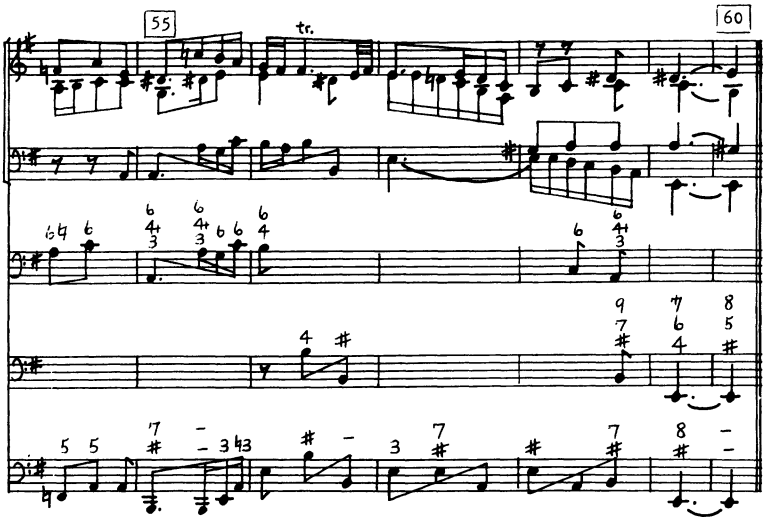
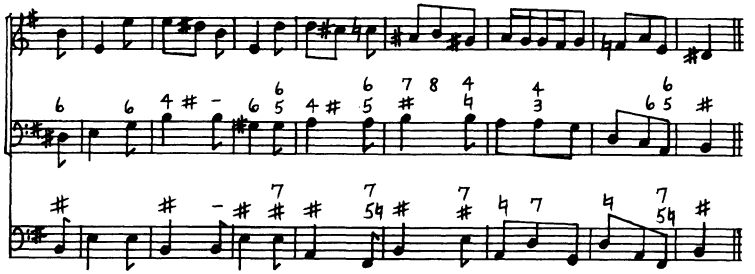




EXAMPLE

2 b Kollmann. A NEW THEORY OF MUSICAL HARMONY, Plate XX, Number 4



Kirnberger's conservative attitude toward the treatment of dissonance is evident elsewhere in his analysis. For example, in m. 37 he indicates a change of harmony where no change occurs. He is forced into this interpretation by his own rules; the g^1, which is approached by leap, cannot be considered as a decoration of the following f♯. And in m. 56, he interprets the six-four on the downbeat as a consonant chord rather than as a dissonant one (a non-essential dissonance), which resolves eventually to the five-three on the third beat. He does this because the sixth is approached by step, not prepared as a suspension. Thus he is forced to accept this chord as the consonant preparation of the suspension chord on the second beat.

Ironically, Kirnberger was better known for two analyses which he did not do, but which were done under his supervision by his student, J. A. P. Schulz. These analyses are of J. S. Bach's Fugue in b minor (DAS WOHLTEMPERIERTE KLAVIER I) and his Prelude in a minor, Part 1 (DAS WOHLTEMPERIERTE KLAVIER II); the opening measures of the first of these is reproduced in Example 3a. Both analyses were published under Kirnberger's name at the end of DIE WAHRE GRUNDSÄTZE ZUM GEBRAUCH DER HARMONIE (1773). Schulz disclosed some years later that he himself was the real author of that work. *18

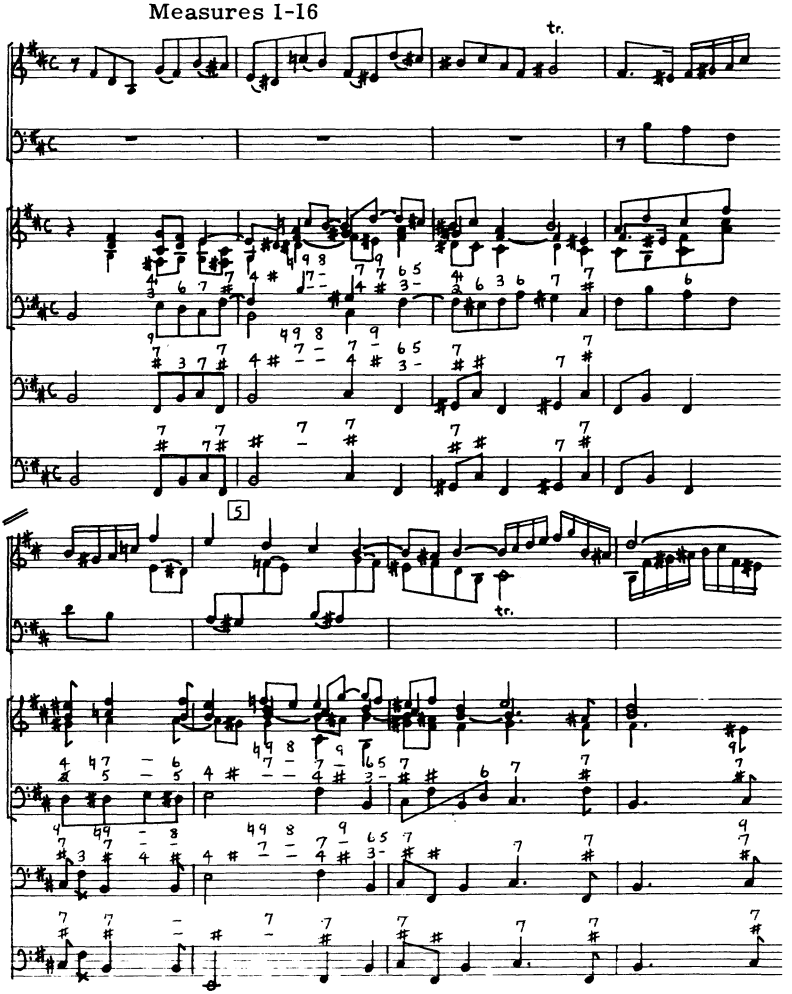
Schulz's Analysis of J. S. Bach's Fugue in b minor

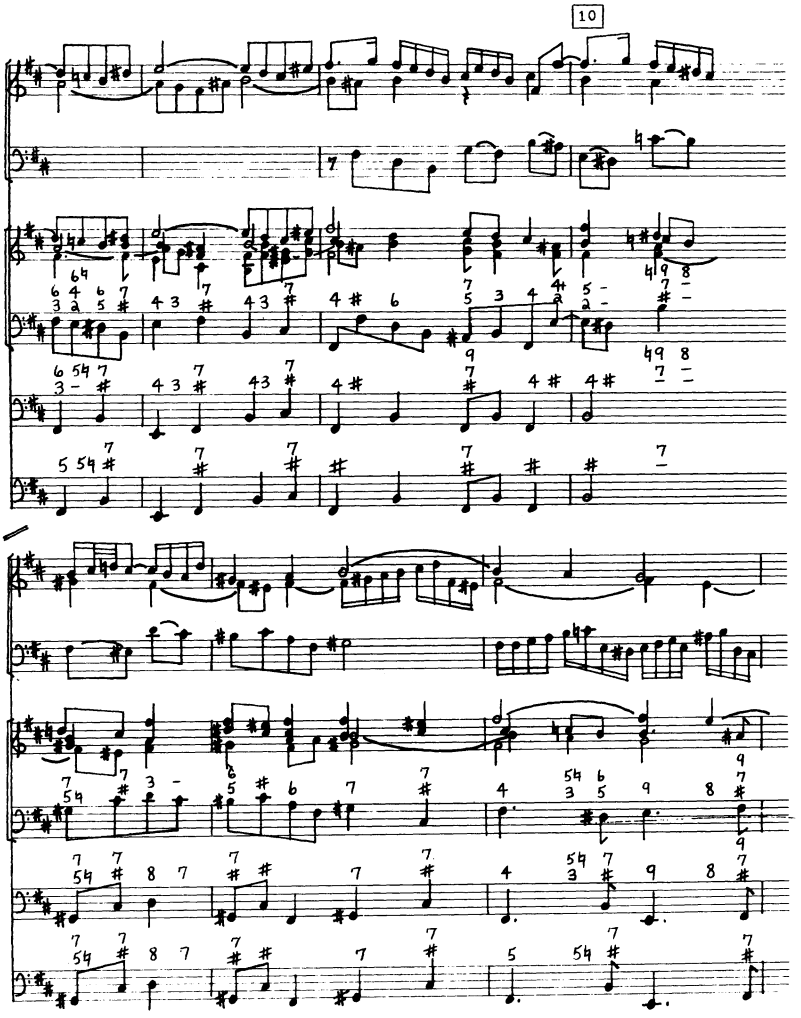
The method in which this analysis is presented is patterned after Kirnberger's analysis of his fugue. On the second system, Schulz provides a detailed figured bass realization, which represents his interpretation of the harmonic and contrapuntal implications of the fugue. In his own words, it was added to make "the correctness of our fundamental bass all the more evident" (p. 54). Below that he indicates all chords containing non-essential dissonances, including the "unauthentic" seventh. At the bottom is the fundamental bass, which shows his interpretation of the fugue's harmonic structure.

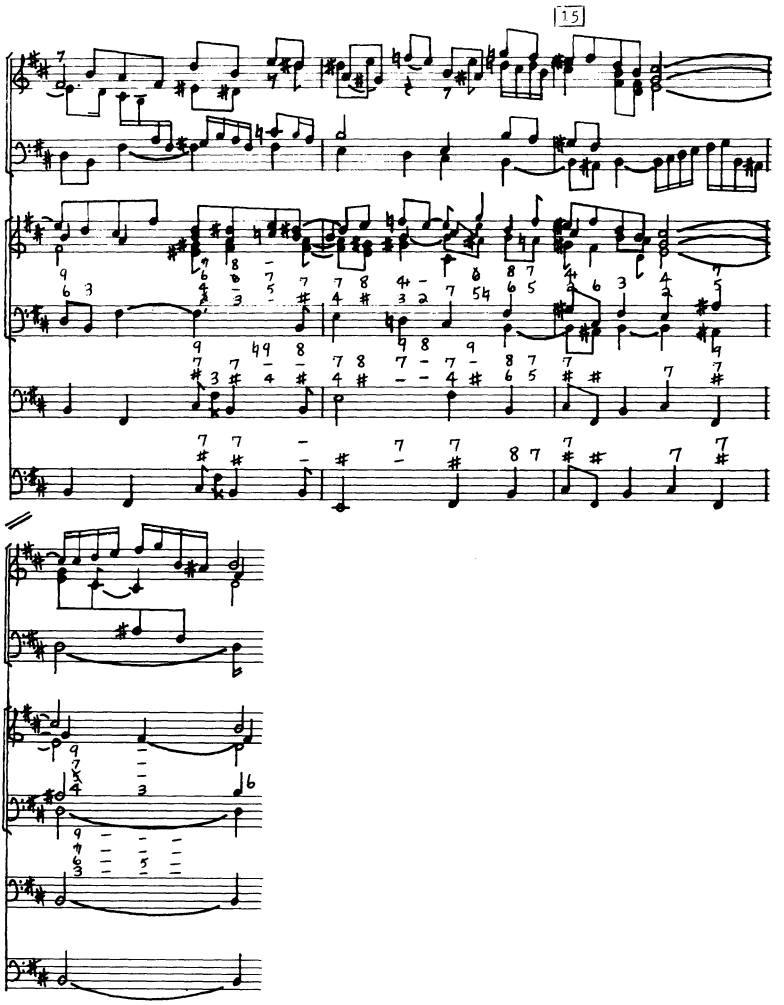
Examination of the various levels of analysis reveals that Schulz often interprets linear elements as harmonic components. In many cases, the reason for this can be attributed to his overly strict attitude toward the treatment of dissonance. For example, like Kirnberger, he does not allow for unprepared dissonances, except the "essential" and "unauthentic" sevenths; this is clearly reflected in his figured bass realization. But one of the most important characteristics of this fugue, par-

EXAMPLE

3 a Schulz's Analysis of J. S. Bach's Fugue in B Minor, Measures 1-16




10


15

ticularly the subject, is the use of unprepared "non-essential" dissonances (appoggiaturas). The result of Schulz's misinterpretation of these notes is that his fundamental bass contains more harmonies than are implied in the music.

An alternate solution to the opening measures of this piece is given in Example 3b. Parentheses indicate those notes which are foreign to the harmony. Note that fewer harmonies are shown in this fundamental bass than in Schulz's analysis; compare for example the two solutions of m. 7. But no matter how many (or how few) harmonies are shown in a fundamental bass, the problem of indicating the relative importance of the individual harmonies still remains. This is one major drawback in using the fundamental bass as a means of indicating the harmonic structure of a composition.

In two places (mm. 4 and 13), Schulz uses a grace note in the fundamental bass to indicate that a harmony is missing in the actual composition. He does this to justify the descending stepwise root progressions which result from his interpretation of the harmony at these points. *19 The difficulty arises from his interpretation of the first half of the third beat in those two measures as representing C♯^{7} chords; this reading is the result of his interpretation of decorative notes as harmonic tones.

Alternate solutions of these two measures (and m. 10) are given by Kollmann in his treatise, A NEW THEORY OF MUSICAL HARMONY (1806); they are reproduced in Example 3c. Kollmann's interpretation of m. 4 correctly shows the second half of the measure as representing a single harmony. However, his reading of the second half of m. 13 is by no means an improvement on Schulz's analysis. In addition to repeating Schulz's misinterpretation of the harmony on the first half of the third beat, Kollmann indicates Schulz's grace note as a regular harmony in the fundamental bass. Furthermore, he adds a passing note (c♯) to Bach's fugue—in the part containing the subject—to corroborate his analysis. It is curious that his analysis of these two measures would be so different, considering that their motives are so closely related (as the opening measures of the tonal answers). Finally, his interpretation of the harmony in the second half of m. 10 makes no more sense than does Schulz's. (See the solution of that measure in Example 3b.)

The Influence of Kirnberger's and Schulz's Analyses

Kirnberger's (and Schulz's) approach to harmonic analysis had a direct influence on a few theorists of the late eighteenth and early nineteenth centuries. This influence is most evident in the treatises of Augustus Frederic Christopher Kollmann (1756-1829), to whom reference was made above. *20 In the first of his works, AN ESSAY ON MUSICAL HARMONY (1796), Kollmann provides an analysis of the first twenty-two measures of a Handel fugue in a minor. *21 The analysis consists of a thorough-bass and a fundamental bass added below the fugue; the latter clearly reflects Kirnberger's system of chord classification. He follows the example of both Kirnberger and Schulz (and even Rameau!) in choosing a fugue, an obviously contrapuntal form, as the subject for harmonic analysis. In a later work, A NEW THEORY OF MUSICAL HARMONY (1806), Kollmann provides analyses of abstracts from the last movement of his Concerto, Opus 8 (plates 32 and 33) and mm. 26-79 of J.S. Bach's Chromatic Fantasy in d minor (plates 34-36). In both cases, the analysis is presented in the form of an added thorough-bass realization ("explanation") and a fundamental bass ("proof").

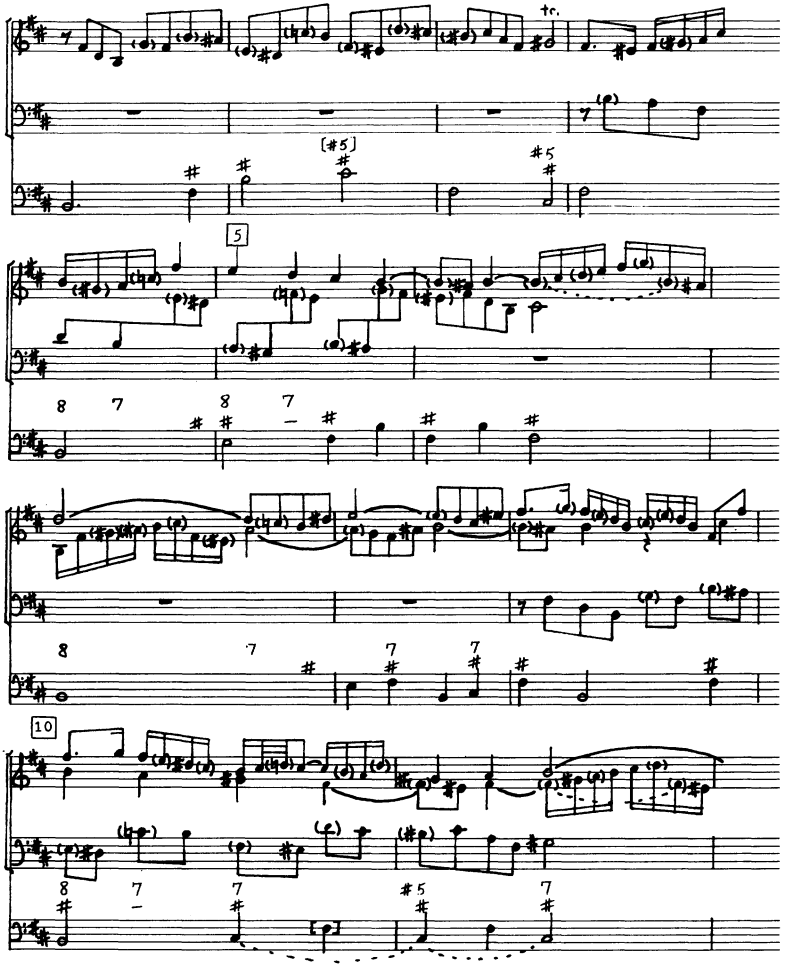
Another who was influenced by Kirnberger and Schulz in this respect is Johann Bernard Logier (1777-1846). *22 In his treatise, A SYSTEM OF THE SCIENCE OF MUSIC AND PRACTICAL COMPOSITION (1827), Logier provides analyses of the Largo from Corelli's Concerto in D, Opus 6, No. 1 and the second movement of Haydn's String Quartet, Opus 76, No. 1. They appear in a section entitled "Analyzation". *23 The analyses are presented in the form of an added fundamental bass, above which Logier provides figures for the essential and non-essential dissonances (not all of which appear in the music!). He also provides comments about modulation, phrase structure, and other important features of these pieces. Additional analyses by Logier are contained in his THEORETICAL AND PRACTICAL STUDIES FOR THE PIANOFORTE (1816), a series of twelve studies of selected compositions by Corelli, Handel, Haydn, Mozart, Beethoven, Clementi and others.

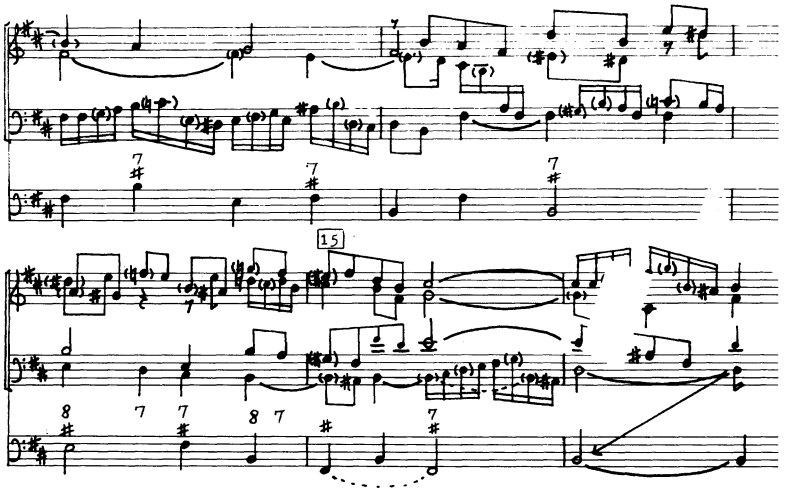
III Gottfried Weber and Roman Numerals

One of the most important contributions to the development of harmonic analysis was made by Gottfried Weber (1779-1839). In the first volume of his VERSUCH EINER GEORDNETEN THEORIE DER TONSETZKUNST (3 volumes, 1817-21), Weber

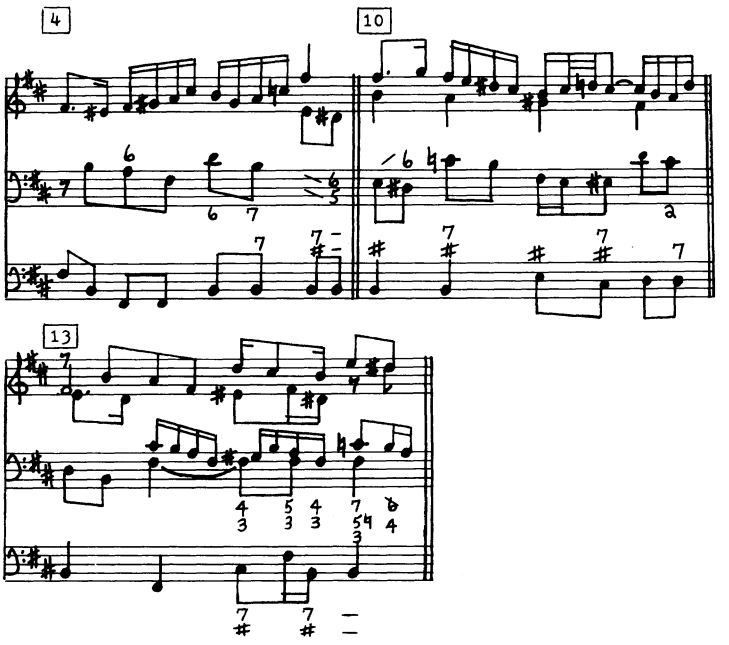
EXAMPLE 3b

An Alternate Solution





EXAMPLE 3c Kollman. A NEW THEORY OF MUSICAL HARMONY, Plate XX, Numbers 1-3



introduced a new method of indicating fundamental harmonies. In place of the fundamental bass, he proposed the use of roman numerals to indicate harmonies in their relationship to a tonal center. *24 The advantages of this system over the fundamental bass are clear. First, the roman numeral indicates both the root of a chord as well as its relationship to a tonic. (The fundamental bass does only the first of these.) Thus the concept of harmony is related to that of key. Second, according to Weber's system, the roman numeral also indicates the type of chord involved. Upper and lower case numerals indicate major and minor triads respectively, and a diminished triad is designated by a lower case numeral with the superscript ^{o}. Major and minor sevenths are designated by the subscripts $_{\flat 7}$ and $_{7}$ respectively. Thus the triads and seventh chords in any major and minor key are designated as follows. *25

Major Key			Minor Key		
I	and	$I_{\flat 7}$	i		
ii	"	ii_{7}	ii^{o}	and	ii^{o}_{7}
iii	"	iii_{7}			
IV	"	$IV_{\flat 7}$	iv	"	iv_{7}
V	"	V_{7}	V	"	V_{7}
vi	"	vi_{7}	VI	"	$VI_{\flat 7}$
vii^{o}	"	vii^{o}_{7}	vii^{o}		

In the last two volumes of his treatise, Weber makes use of roman numerals to indicate his harmonic analysis of excerpts from numerous compositions. One of these, which appears at the end of Volume 2, is his analysis of The March of the Priests of Isis from Mozart's MAGIC FLUTE; it is reproduced here in Example 4. Examination of this analysis reveals that Weber's conception of harmony is much more like Kirnberger's than Rameau's. Note for example his interpretation of the 9-8 suspension in m. 6 (or the 4-3 in m. 12) as representing a single harmony. However, like both theorists, he shows a tendency to interpret too many chords as fundamental harmonies. In this respect, note his interpretation of the parallel sixth chords in mm. 2-3 and mm. 18-19. Here he has assigned a roman numeral to every chord, thus implying that each functions as a separate harmony. But in reality the chords in m. 3 (or m. 19) extend a single harmony (G) as preparation for the following dominant. *26 This analysis also demonstrates Weber's method of relating all harmonies to their proper tonal center; as a re-

sult, the analysis outlines his interpretation of the composition's modulatory scheme. But many of the so-called modulations indicated involve only two or three chords; in fact, there are thirteen separate key changes indicated in the last twenty measures. This points to a weakness in his system, namely, its failure to differentiate between actual modulation and the use of "secondary dominants" to stress important harmonies.

Weber's approach to harmonic analysis had an immediate effect on other theorists. *27 This influence grew steadily to the point where the use of roman numerals became an integral part of harmonic theory. One need only thumb through the standard textbooks on harmony published in the past twenty-five years to see this. In fact, one would find that, with few exceptions, there has been little change in the approach to harmony and harmonic analysis since Weber's time. For this reason, there is no need to dwell any further here on his contributions.

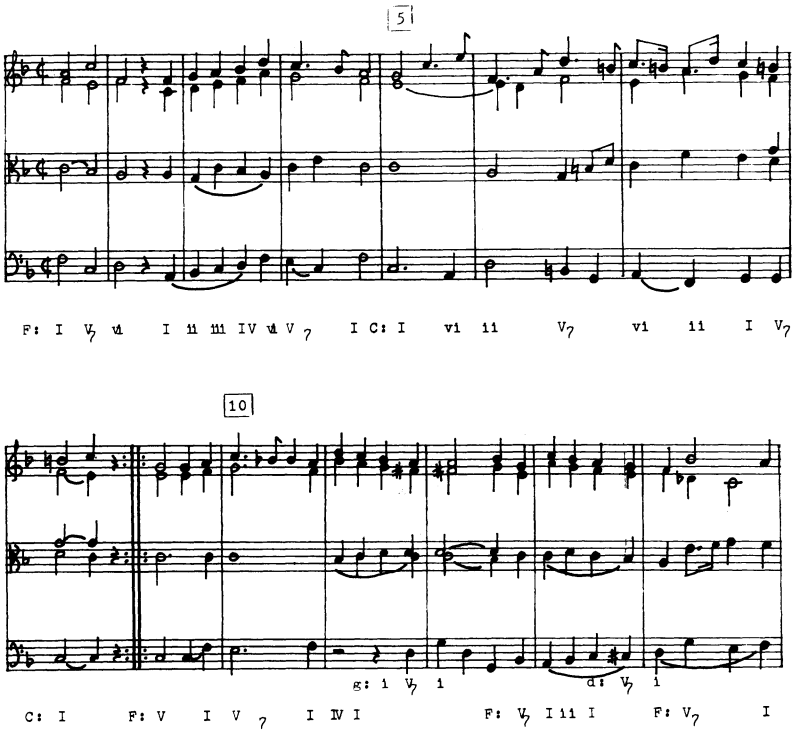
Concluding Remarks

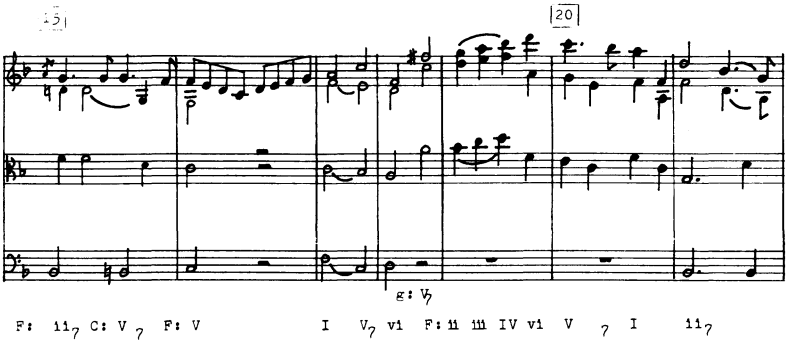
In the preceding discussion, an attempt has been made to indicate the roles played by Rameau, Kirnberger and Weber in the formulation of our present concept of harmony and harmonic analysis. Many of the comments have stressed the weaknesses in their approaches and the negative aspects of their influence. This does not imply that their theories are without merit; rather, it should be stressed that all three made significant contributions to harmonic theory. Nevertheless, it is important to realize that Rameau's theories are based on the premise that harmony, as a science, is separable from counterpoint. This led him to consider the individual chord in isolation from its context; this is a fundamental error. By contrast, Kirnberger's approach to harmony, which followed in the tradition of the figured bass school, was far more practical. But because of his strict attitude toward the treatment of dissonance, he also lost sight of the interaction between harmony and melody. Finally, it has been noted that Weber's use of roman numerals is an improvement on the fundamental bass as a means of showing the fundamental harmonies in a composition. But like Rameau and Kirnberger, he was interested in showing only the most immediate harmonic connections.

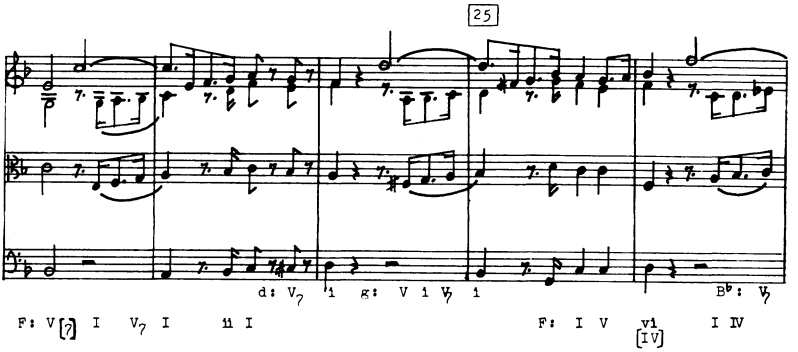
Twentieth century approaches to traditional harmony and harmonic analysis are, for the most part, related directly to eighteenth century attitudes toward those disciplines. The one major exception to this is found in the works of Heinrich Schenker

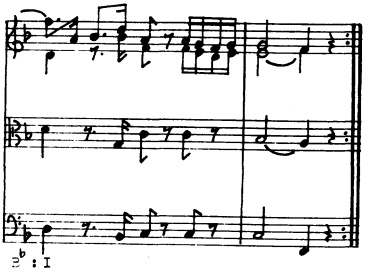
EXAMPLE 4

Weber's Analysis of The March of the Priests of Isis
from Mozart's MAGIC FLUTE



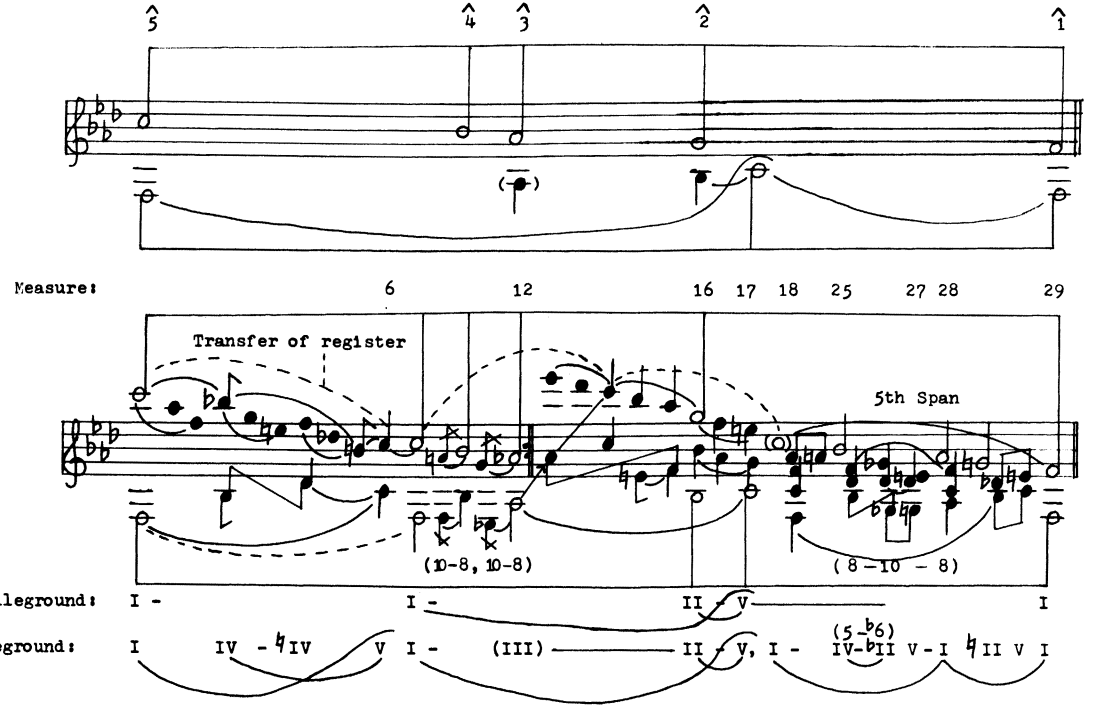

20
g: V7
F: ii7 C: V 7 F: V I V7 vi F: ii iii IV vi V 7 I ii7


25
d: V7 i g: V i V7 i B♭: V7
F: V [7] I V7 I ii I F: I V vi [IV] I IV


B♭: I
F: ii V 7 I.

EXAMPLE 5

Schenker's Analysis of the Theme from Haydn's
Andante con variazioni in F Minor



(1868-1935) and his followers.*28 In a certain sense Schenker's theories represent a reaction against the traditional approaches to tonal phenomena.*29 In fact, one of the most important features of his theories is that they show the relationship between harmony and counterpoint as they operate within a tonal context. To demonstrate this, Schenker's analysis of the theme from Haydn's Andante con variazioni is reproduced here in Example 5.*30 The lower graph shows the contrapuntal structure of the theme, and the roman numerals below it indicate the main harmonies at the foreground and middleground levels. The skeletal structure [Ursatz] of the composition is shown in the upper graph. The superiority of this approach to analysis would seem obvious—it is capable of showing the interaction between harmony and counterpoint at various interrelated levels. It is significant that an increasing number of musicians have adopted Schenker's approach to the analysis of musical structure over the past few years. This would seem to indicate a long-needed change in our attitude toward the relationship between harmony and counterpoint.

REFERENCES

1 A. Tillman Merritt, "Harmonic Analysis," HARVARD DICTIONARY OF MUSIC, 2nd edition, revised and enlarged (Cambridge, 1969), 367.

2 See, for example, Paul Hindemith's analysis of Schoenberg's KLAVIERSTUCK Op. 33A (mm. 19-29) in his CRAFT OF MUSICAL COMPOSITION, Book I (1937). English translation by Arthur Mendel (London, 1942).

3 Schenker's objections to traditional music theory are clearly expressed in his essay, "Rameau oder Beethoven? Erstarrung oder geistiges Leben in der Musik", DAS MEISTERWERK IN DER MUSIK, JAHRBUCH III (1930). A translation of this article is available in Sylvan Kalib's THIRTEEN ESSAYS FROM THE THREE YEARBOOKS "DAS MEISTERWERK IN DER MUSIK" BY HEINRICH SCHENKER: AN ANNOTATED TRANSLATION (Ph.D Dissertation: Northwestern University, 1973).

An important feature of Schenker's theories is his distinction between chord and harmony (scale-step). Since a harmony may include a number of different chords in succession, not all of them can be considered as representatives of that harmony; some must be seen as existing for contrapuntal reasons. Thus voice-leading (counterpoint) is shown as the means by which harmonies are unfolded in time. This interaction between harmony and counterpoint is evident in the analyses of Schenker and his followers. Since their purpose is to reveal the tonal fabric of individual compositions, they might be called "structural"—as opposed to purely "harmonic"—analyses.

4 Rameau's theoretical approach to harmony and the classification of chords is totally different from the practically oriented approach of the figured bass theorists. Rameau was interested in discovering the acoustical and mathematical laws which govern harmonic connection and the generation of chords. By contrast, the figured bass theorists of that period were primarily concerned with classifying the various signatures in such a way that they could be learned most readily by accompanists.

5 For more detailed information about Rameau's harmonic theories, consult the following sources:

Joan Ferris, "The Evolution of Rameau's Harmonic Theories," JOURNAL OF MUSIC THEORY, 3(1959), 231-256.

Matthew Shirlaw, THE THEORY OF HARMONY, 2nd edition (DeKalb, Illinois), chapters 3-9.

6 Jean-Philippe Rameau, TREATISE ON HARMONY, tr., with an introduction and notes, by Philip Gossett, (New York: Dover, 1971), 60-61.

7 Rameau's discussion of this piece appears in chapter 44, "On Design, Imitation, and Fugue," at the end of Book III ("Principles of Composition"). He explains that it contains four different fugues (a quadruple fugue), according to the following division of the text: "Laboravi clamans. Factae sunt fauces meae. Defecerunt oculi mei, dum spero in Deum meum. Dum spero in Deum meum."

8 Rameau's analysis and discussion of this recitative appears in the chapter which deals with how to derive the correct fundamental bass from any given piece. (Comparison with the Ballard edition of 1686 reveals a number of differences in the figured bass.) This analysis, with minor changes, was reprinted by d'Alembert in his ELEMENS DE MUSIQUE THEORIQUE ET PRATIQUE (1752).

Further discussion and analysis of portions of the Monologue d'Armide appear in Rameau's OBSERVATION SUR NOTRE INSTINCT POUR LA MUSIQUE (1754). Here Rameau is defending Lully's setting of the text (and French vocal music in general) against Rousseau's criticisms of it in his LETTRE SUR LA MUSIQUE FRANCAISE (1753). This is discussed in the following article by E. Cynthia Verba: "The Development of Rameau's Thoughts on Modulation and Chromatics," JOURNAL OF THE AMERICAN MUSICOLOGICAL SOCIETY, 26 (1973), 69-91.

9 The remainder of the analysis has been omitted here, since it does not provide any new information.

10 An equivalent situation—progression from a six-five chord on scale degree 1 to the dominant of the key—is also considered an irregular cadence. In this situation, as in the other, the six-five is interpreted as a fundamental harmony to avoid the forbidden progression. (See m. 28 of Rameau's analysis.)

11 Compare Rameau's interpretation of this measure with that of m. 46, where the 4-3 suspension is correctly shown to represent a decoration of a single harmony.

12 One of the main champions of Rameau's theories was Friedrich Wilhelm Marpurg (1718–1795), who introduced them—albeit in altered form—in Germany. He added the thirteenth chord, formed by adding a seventh below a seventh chord, to the other chords of supposition. His classification of these chords as fundamental harmonies of the second order was the main source of inspiration for future generations of misguided theorists. (See p. 28 of his HANDBUCH BEY DEM GENERALBASSE UND DER COMPOSITION (1755).)

13 For more detailed information about Kirnberger's harmonic theories, consult the following sources:

David Beach, THE HARMONIC THEORIES OF JOHANN PHILIPP KIRNBERGER: THEIR ORIGINS AND INFLUENCES (Ph.D. Dissertation: Yale University, 1974).

Joyce Mekeel, "The Harmonic Theories of Kirnberger and Marpurg," JOURNAL OF MUSIC THEORY, 4(1960), 169-193.

14 Differences between the approaches of Rameau and Kirnberger to harmony and harmonic analysis are discussed by William Mitchell in his article, "Chord and Context in 18th-Century Theory," JOURNAL OF THE AMERICAN MUSICOLOGICAL SOCIETY, 16(1963), 221-239.

15 In his VERSUCH UBER DIE MUSIKALISCHE TEMPERATUR, NEBST EINEM ANHANG UBER DEN RAMEAU- UND KIRNBERGERSCHEN GRUNDBASS (1776), Marpurg took Kirnberger to task for adopting Rameau's fundamental bass for his own purposes. Although many of Marpurg's specific criticisms were justified, there is no reason why Kirnberger should not have used this device as he saw fit.

16 According to Kirnberger, there are three types of seventh chords: (1) the essential (where the seventh is part of the harmony and resolves with a change of harmony), (2) the non-essential (where the seventh is a suspension and resolves over the same harmony), and (3) the unauthentic (where the seventh is non-essential, but its resolution is delayed until the following harmony). (This last type occurs only with seventh chords built on the leading tone of a key.) Thus, while the unauthentic seventh chord has the appearance of an essential one, it is really a special type of non-essential chord. And since the seventh stands in the place of the sixth, the real root of an unauthentic seventh chord is a major third below the apparent root.

There are numerous examples of all three types of seventh chord in this analysis (Example 2a). One example of the unauthentic type appears in m. 31. Here the root of the diminished seventh chord d♯-(f♯)-a-c is shown to be B, not d♯. Thus "c", while the seventh of the actual chord, is really the non-essential ninth above the root of the generating harmony; hence the figures $\frac{9}{7}$.

17 Kirnberger considered the interval of a diminished fifth between scale degrees 2 and 6 in a minor mode—as opposed to the one between the leading tone and scale degree 4—to be consonant. He made this distinction on the basis of his own system of tuning, which is similar to Pythagorean tuning.

18 See the ALLGEMEINE MUSIKALISCHE ZEITUNG, Volume 2 (1800), 277-278, footnote (**).

19 Although Schulz never states that progressions by descending second are forbidden or unnatural, this is strongly implied. In this respect, he seems to follow Rameau more than Kirnberger.

20 Kollmann, a native German, spent most of his life in England, where he was the organist of His Majesty's German Chapel at St. James from 1792 until his death in 1829. In his early works, he followed Kirnberger's theories very closely. However, he later came to the realization that Kirnberger's system of chord classification was incomplete, since it excludes certain types of dissonance. In A NEW THEORY OF MUSICAL HARMONY, he proposed a new system, which is a modification of Kirnberger's.

21 This fugue is the fifth in a collection of SIX FUGUES OR VOLUNTARYS FOR THE ORGAN OR HARPSICHORD (1735).

22 Logier was best known for his invention of the chiroplast or hand-director, an "apparatus for facilitating the acquirement of a proper execution on the pianoforte."

23 As far as I know, this is the first use of that term to describe the process of determining the structure of a musical composition.

24 Weber may have gotten this idea from Georg Joseph Vogler (1749-1814), who was actually the first to use roman numerals in this way. (See his HANDBUCH ZUR HARMONIELEHRE UND FUR DEN GENERALBASS (1802).) However, it was Weber who established their use in a systematic manner.

25 Note that Weber excludes certain chords from the list of those appropriate to a minor key. In the key of a minor, for instance, he considers but rejects the following chords on the basis that they are not fundamental harmonies: the seventh chord (a,c,e,g♯) on scale degree 1, the triad (c,e,g♯) on scale degree 3, the seventh chord (c,e,g♯,b) on scale degree 3, and the seventh chord (g♯,b,d,f) on scale degree 7. All contain the leading tone, which according to Weber, is a necessary element in all keys. For this reason he does not consider those chords which contain the lowered (natural) scale degree 7; they belong to some other key.

26 For a more detailed discussion of the functions of parallel sixth chords, see Chapter II in Allen Forte's TONAL HARMONY IN CONCEPT AND PRACTICE, 2nd edition (New York, 1974).

27 See, for example, Friedrich Schneider's ELEMENTARBUCH DER HARMONIE UND TONSETZKUNST (1820).

28 For information about Schenker's theories, consult the following work by this author: "A Schenker Bibliography," JOURNAL OF MUSIC THEORY, 13(1969), 2-37.

29 This does not mean, of course, that Schenker was opposed to the views of all earlier theorists. His conception of the relationship between voice-leading and vertical structure, for example, was influenced to some extent by C.P.E. Bach's views on that subject.

30 This analysis was originally published in the ANHANG (Example 48) of Schenker's last work, DER FREIE SATZ (1935). In Example 5, the German terms have either been translated or omitted entirely, as seemed most appropriate.