

CHAPTER FOUR



Rameau's Early Works

Music is a science which should have definite rules; these rules should be drawn from an evident principle; and this principle cannot really be known to us without the aid of mathematics. Notwithstanding all the experience I may have acquired in music from being associated with it for so long, I must confess that only with the aid of mathematics did my ideas become clear and did light replace a certain obscurity of which I was unaware before.

Rameau 1722, preface

Rameau as a Theorist of Harmony

Harmony joins counterpoint and thoroughbass as the third theoretical tradition inherited by the early eighteenth century. It too traces its lineage back to the sixteenth century. But it was the least developed of the three before the *Traité de l'harmonie* by Jean-Philippe Rameau (1683–1764) appeared in 1722. This is because counterpoint and thoroughbass had immediately practical applications in the seventeenth century. Counterpoint codified voice interactions for instruction in composition, both in the *stile antico* and in more modern styles, and thoroughbass taught patterns of simultaneity successions for performers who needed to realize figured and unfigured basses and for composers who assembled these patterns into new compositions.

The study of harmony, although it had been the medium for important theoretical breakthroughs in the late sixteenth and early seventeenth centuries, had no comparable pedagogical application. Many of the theoretical tenets that Rameau drew together in his theories—chord inversion, harmonic scale-step norms, basic harmonic progressions (especially cadences), dissonance resolutions, and cadential evasion—were recognized before he was born. But they had remained isolated bits of information and rules of thumb. Rameau built a perspective on musical structure from these tenets,

thereby transforming them from peripheral information to the center of musical knowledge.

By re-examining musical knowledge and reorganizing it according to what he regarded as more consistent principles, Rameau brought to music theory the intellectual revolution that transformed Western thought in the seventeenth and early eighteenth centuries. René Descartes (1596–1650) had both reflected changed attitudes in thinking and also propelled these changes with new energy and direction. Facts were no longer valid because they stood the test of time; now they would have to pass the test of reason as well. “At best an argument from what has been, to what should of right be, has no force” (John Locke, *Second Treatise on Government* 1689, par. 103).

Furthermore, facts were not to be accepted simply because they existed: their significance was to be deduced according to first principles, which gave them a place in the cosmos of ideas. Copying Descartes, who sought to place all knowledge on a solid methodological foundation built on the principles of mathematics, Rameau sought basic principles that would place musical knowledge on a sound footing and replace the myriad rules and exceptions of thoroughbass and counterpoint—a disorganized mass of individual facts and opinions that had arisen from unconsidered experience.

But Rameau was not merely a deductive systematizer who followed his reasoning wherever it led him and disregarded musical realities. He was a practical musician, a major organist, and one of the great composers of the century. He would have no part of the theorizing of musical amateurs and lesser musicians who, caught up in the investigative spirit of the age, attempted to systematize musical knowledge without knowing music well, who rejected common chords or progressions that had did not fit into some deductive system, and who proposed musical practices that bore little resemblance to common reality.

For Rameau, the deductive process, which exalts reason over experience, did not necessarily denigrate the practical, living knowledge yielded by experience. Practical skills were not only useful, since “a musician can excel in the practice of his art without knowing theory” (Rameau 1726, title to Chapter 21)—they were absolutely necessary: “Only by means of keyboard accompaniment can one promptly acquire a sensibility to harmony” (ibid., title to Chapter 22). Throughout his life he addressed practical concerns: Books 3 and 4 of his *Traité* (1722) treat composition and accompaniment, the latter reading in many places like a thoroughbass manual; his *Dissertation* of 1732 defends a new method of accompaniment; the longest chapter in his *Generation* of 1737 deals with composition; and the *Code* of 1761 is largely a method teaching composition and accompaniment.

No matter how important experience was, Rameau argued as a Cartesian that knowledge and skills gained thereby were unreliable without understanding their foundation. Reasoned knowledge together with skills attained through experience would complement one another. The mediating factor was talent—a gift of Nature. Reasoned knowledge, experienced skills, and talent had to work together. Even “persons with mature taste” and a “natural gift” might “stray from the truth unless this gift is sustained by knowledge, though knowledge cannot suffice for perfection unless good taste comes to its aid” (Rameau 1722, Book 3, Chapter 41).

Talent is crucial for Rameau because “music is doubtless natural to us” (Rameau 1726, p. 90). Nature allows a naive singer to discover the intervals and structure of the major scale merely by singing what comes naturally (*ibid.*, Chapter 9). And, as Rameau urges his readers to prove by experiment, Nature bestows on “anyone sensitive to harmony, even children of 8 or 9,” the ability to sing the fundamental bass (what we call the root) of a cadential chord without even knowing what they are doing (*ibid.*, Chapter 10). The full title of the *Traité*, “Treatise on Harmony reduced to its natural principles,” reflects both Rameau’s Cartesian search for first principles and his belief that music has a natural basis. In arguing from Nature, Rameau shared common roots with many diverse traditions of musical thought in the eighteenth century. As the German musical scholar Lorenz Mizler (1711–1778) wrote in 1737, “‘orderly’ and ‘natural’ are one and the same in music, for Nature itself orders the tones . . . [F]rom this natural ordering of tones arise all other truths in music” (Mizler 1736–1754, Vol. 4, p. 60).

Because Rameau both searched for the basic principles underlying music and also addressed practical concerns, his works often present two seemingly separate explanations for a given phenomenon. As speculative theorist he will offer an explanation, while as practical theorist he will concentrate on the results. When a speculative perspective is prominent in one work and a practical perspective predominates in others, it has seemed to many scholars that Rameau changed his opinions on the issue. But often, Rameau held similar views in both works, although he may have spoken speculatively in one and practically in another.

Rameau’s ideas continued to evolve throughout his lifetime. Many of these changes took place in the speculative side of his theories. Consider the minor triad, a perennial source of trouble for Rameau the speculative theorist. For reasons to be discussed below, Rameau repeatedly proposed new methods of deriving the minor triad, once even offering two derivations within the same treatise (Rameau 1750). But whatever his justification for the minor triad in any given work, Rameau the practical musician always recognized that the minor triad was just as firm a foundation of musical structure as the major triad. As a result, many theoretical battles

that have been cast as pro-Rameau versus anti-Rameau from the eighteenth century to the present day are also battles within Rameau's own works: Rameau the speculative theorist versus Rameau the practical theorist, or Rameau the speculative theorist in one work versus Rameau the speculative theorist in another.

Thus the charge that Rameau "pronounced a *theory*, whereas thoroughbass was essentially a practice" (Mitchell 1949, p. 17) is ultimately a criticism largely directed against the speculative side of his writings. Both the speculative and practical sides of Rameau might have argued against this statement by noting that the ultimate value of reason lies not in abstractions but in practical applications. For him, the innumerable rules and exceptions of traditional theory of thoroughbass and counterpoint-composition were the impractical side of music theory.

Because Rameau built much of his new perspective from existing tenets and verifiable musical facts, many of his ideas spread throughout the musical world quite rapidly. Within a decade after the appearance of Rameau's *Traité* in 1722, many of its premises had been adopted by an anonymous French musician arguing with Rameau in the pages of the prestigious Parisian journal *Mercure de France* over *how* to apply some of his ideas, not *whether* to apply them. Rameau's *Traité* is probably the source for the discussion of inversions in Heinichen's 1728 thoroughbass treatise; David Kellner's formulation of chordal inversions in his extremely popular thoroughbass manual of 1732 is even closer to Rameau's than is Heinichen's. During the 1730s and 1740s English, French, and German publications on thoroughbass and composition are based on Rameau's theories. Beginning in the 1750s, students of J. S. Bach who claimed to deal with their teacher's composition method were analyzing the master's compositions with Rameau's theories (Nichelmann and Kirnberger). And musicians avowing to be opponents of Rameau claimed that they or their own predecessors had discovered tenets of his theory.

Rameau's ideas on harmony rapidly transformed counterpoint and thoroughbass. By the last third of the century, counterpoint was more often than not presented as the activation of a harmonic structure (in Kirnberger 1771–1779 and Koch 1782–1793), and species counterpoint was understood in terms of chords and their inversions, even when Fuxian methods were used (in Mozart 1784 and Albrechtsberger 1790). Thoroughbass came to be taught in terms of triads, seventh chords, and their inversions, much as Rameau had recommended in 1722 (as in Türk 1791). Even the composition method of Johann Philipp Kirnberger (1721–1783), published in the 1770s, in which Kirnberger claimed to follow the instructional method of his teacher J. S. Bach, is largely based on Rameau's theories; this despite the fact that it was supposedly to support Kirnberger's treatise that C. P. E. Bach penned his famous remark "you can loudly declare that

my principles and those of my late father are anti-Rameau” (Kirnberger 1771–1779, Vol. 2, p. 188). The study of harmony long remained the heart of tonal music theory.

Unlike the traditions of counterpoint and thoroughbass, which derive from the works of numerous writers, harmonic theory first rose to prominence in the eighteenth century because of works published by a single theorist over several decades. Since much of what happened in theory later in the century was dependent on understandings and misunderstandings of the tenets and attitudes enunciated by Rameau, a full appreciation of later theory is possible only via knowledge of Rameau’s ideas and their manner of presentation.

Rameau’s Works

Rameau was a mature musician when he began producing the works that made him famous as a theorist and composer. When his first treatise, the *Traité de l’harmonie*, appeared in 1722, he was already thirty-nine and still relatively obscure, describing himself, in a country where Paris was by far the most important musical center, as “Organist of the Cathedral of Clermont in Auvergne.” Likewise, he was fifty when his first opera premiered in 1733. With untiring energy, he became one of the most prolific music theorists of any age, publishing several lengthy treatises and numerous shorter works during the four decades after 1722. At age eighty, Rameau poignantly described how he treasured the few hours of daylight during which his failing eyesight still allowed him to put his ideas to paper (Rameau CTW 6, p. xli–xlii).

Rameau published several treatises, smaller independent items, and many letters and articles in various journals. Additional items remained in manuscript, some only recently rediscovered, some still unpublished, others apparently lost. With the great number of his writings, there are minor discrepancies in the contents of the four comprehensive lists of his published and unpublished writings (Rameau CTW 6, pp. lxix–lxxi; Girdlestone 1969, pp. 581–582; Cyr 1980; Damschroder-Williams 1990). All the published works appear in facsimile in *Jean-Philippe Rameau, Complete Theoretical Writings* (Rameau CTW below), along with many contemporaneous secondary sources. Erwin Jacobi’s meticulous introductory essays in each of the six volumes constitute the single most comprehensive study to date of the circumstances surrounding Rameau’s writings, critical reception of his works, and people connected with his theories.¹

1. In addition to secondary literature cited in connection with specific points, the most comprehensive surveys of Rameau’s theories in English are Shirlaw 1917 and Ferris 1959, which concentrate on Rameau’s speculative ideas; Keane 1961, which offers a broad survey; and Christensen 1993, which places Rameau in the intellectual world of his time.

Rameau's major works, all published in Paris, are the following (the Bibliography contains information on facsimiles and translations):²

- Traité de l'harmonie reduite à ses principes naturels* (1722)
Nouveau système de musique theorique . . . pour servir d'introduction au Traité de l'harmonie (1726)
Dissertation sur les différentes méthodes d'accompagnement . . . avec le plan d'une nouvelle méthode (1732)
Generation harmonique, ou Traité de musique théorique et pratique (1737)
Démonstration du principe de l'harmonie, servant de base à tout l'art musical théorique & pratique (1750)
Observations sur notre instinct pour la musique, et sur son principe (1754)
Code de musique pratique . . . avec de nouvelles réflexions sur le principe sonore [1761]
Origine des sciences (1762)

Rameau addressed his works to a wide range of audiences. Some works are dense speculative tracts, some are practical. Some are philosophical musings on musical and nonmusical topics. Some are addressed to musicians. Others are for musical amateurs, among them the *Dissertation*, whose title page explains that his new accompaniment method can be used "even by those who do not know how to read music," and the *Code: methods to learn music, even by the blind*.

Rameau republished none of his works and seems never to have contemplated preparing a definitive edition (as Zarlino did in 1589), whether because he feared difficulty finding a publisher due to the hostility between himself and the Encyclopedists in his later years (Rameau CTW 1, pp. xiii–xiv), or, more probably, because he was still searching for new solutions to problematic areas in his theories. He was an inveterate reviser of his writings. Even after the *Traité* had been printed, Rameau had substitute pages printed and inserted in the book, and then issued a Supplement along with it containing numerous other changes of substance and of details (Gossett 1971, pp. vii–xii).

The *Traité* of 1722, although it does not contain a number of Rameau's most significant theoretical ideas, was the work that first introduced his ideas to the musical world. This chapter covers Rameau's ideas as pre-

2. Manuscript treatises date from before, during, and after the period of these publications. Suaudeau 1958 and 1960, though brief and relatively uninformative, are the only sources for now-lost manuscripts dating from 1716–1722. Christensen 1987a and 1990a discuss an important manuscript composition treatise probably written between 1737 and 1744 and published in modified form as Gianotti 1759. Schneider 1986 includes Rameau's last treatise (1763–1764).

sented fully in this first treatise. Chapter 5 treats his ideas as they developed in his later works, including aspects of his theory that appear in the *Traité* but are much more fully developed later.

Chords and Inversions

Rameau believed that triads and seventh chords, along with their inversions and other derivatives, accounted for all the structurally meaningful harmonies in tonal music. He also seems to have believed he was the first to relate different chords as inversions of one another: “why is it that until the *Traité de l’harmonie* it was not known that a certain number of chords could join together in one?” The footnote to this passage is “See, on this subject, all treatises on music” (Rameau 1732, p. 14; Hayes 1974a, p. 19).

In the absence of thorough studies of earlier theory, this assertion was accepted by those who supported Rameau and wished to make him the sole discoverer of chordal inversion and by those who attacked Rameau and wished to blame him for the same discovery. When Hugo Riemann cited ambiguous statements hinting at knowledge of chord inversions in thoroughbass manuals around 1700 by Werckmeister and Keller, Matthew Shirlaw vigorously defended Rameau’s priority (Riemann 1898, pp. 431–433; Mickelsen 1977, pp. 160–161; Shirlaw 1917, pp. xii–xiii, 8–12, 25–26). Schenker, probably also responding to Riemann, would hear nothing about Germans preceding Rameau in harmonic theory. He branded chordal inversion a “French innovation” and compared its results to the French Revolution: “‘Below is above and above is below,’ screamed the French Below . . . But what is born above remains above, just as what is below always keeps its place, and all the murder and pillage . . . trying to overturn this natural order remained ineffectual” (Schenker 1930, p. 14). So much for polemic pro and con in the absence of facts.

TRIADIC INVERSIONS BEFORE RAMEAU

It is now clear that several German theorists fully grasped the unity of the triad before the end of the sixteenth century, and that by 1610 two German theorists had stated a theory of triadic inversion, explaining the root-position form as the origin of the two inversions. The German theorist Johannes Avianius (?–1617) describes *perfect* (5/3), *imperfect* (6/3), and *absurd* (6/4) chords in his brief *Isagoge* of 1581 (in Rivera 1978). Unlike Zarlino, who considered chords as composites of intervals, Avianius deems chords three-pitch units even if only two different pitches are present. Thus, he treats a chord containing only C# and A as an imperfect harmony with a missing E.

Other German theorists of the time also treat harmonies as units (dis-

PERFECT COMPOUND CONSONANCE IMPERFECT COMPOUND CONSONANCE

Here the lower note of the fifth is expressed in its place. Or in this manner. Here it is expressed an octave lower. This fourth is a dissonance because the lower third is absent.

Example 4-1. Harnish 1608, p. 54

cussed in more detail in Lester 1989, pp. 28–41). Joachim Burmeister (1564–1629) begins his discussion of composition with four-part harmony, offering charts with four types of chords: those with a perfect fifth and a minor third, those with a perfect fifth and a major third, those with minor thirds and sixths, and those with major thirds and sixths (Burmeister 1599 and 1606). Neither Avianius nor Burmeister relates different inversions to one another.

Shortly thereafter, Otto Siegfried Harnish (c. 1568–1623) differentiates the *basis* or fundamental note from the “lowest note of the harmony” (*inferior vox concordantiae*) and recognizes the inversional relationship among different forms of the triad (Harnish 1608) (see Example 4-1).

Two years later, Johannes Lippius (1585–1612) dubs all forms of this chord the “harmonic triad” (*trias harmonica*) because, like the Holy Trinity, it is a unity born of three separate parts—three pitches and three intervals (Lippius 1610 and 1612). He explains inversions, takes note of the “root” (*radix*) of both intervals and triads, differentiates major and minor forms of the triad, and differentiates modes according to the quality of the triad built on the final. Lippius also offers a compositional method based on the triad, explaining how “all the melodies must so join together that in their combination there will be no consonant portion that does not rest on that unitrisonic harmonic root.” Smooth voice leading over a skipping bass line will create “various kinds of triads more elegantly, more easily, and more wonderfully mixed, combined, and arranged in proper order” (Lippius 1612, fols. G4^v-G7^f; Rivera 1977, pp. 46–47).

Lippius recommends composing the bass first and placing dots to indicate the notes of a triad over each bass pitch (see Example 4-2). The other voices are to be composed by connecting those dots, as shown in Example 4-3. If one starts composing from the tenor or discant, the bass should be added first, with the remaining voices built from the bass. Ornaments of rhythm (unequal note values or syncopations), volume, or pitch (running notes and suspensions) turn such structures into actual compositions. Thus, the basis for an elaborative method of composition building on a

The image shows a musical score for Example 4-2. It consists of two staves: a treble clef staff on top and a bass clef staff on the bottom. The treble staff contains four chords, each represented by a vertical line with dots indicating the notes. The bass staff contains four notes, each aligned with a chord in the treble staff. Below the bass staff, the lyrics are written: 'Lau- da- te DO- MI- NUM.' The notes in the bass staff correspond to the syllables: 'Lau-' (D), 'da-' (E), 'te' (F), and 'DO- MI- NUM.' (G).

Example 4-2. Lippius 1612, fol. H1^r; Rivera 1977, p. 48, with minor errors emended

chordal texture—not unlike that presented a century later by Niedt—had appeared in print by 1612.

Many of Lippius' ideas were not unique to him or to German theorists. The English poet, composer, and theorist Thomas Campion (1567–1620), like his German contemporaries, recognizes the difference between the sounding “Base” of a chord and its “true Base” in the mid-1610s: when a sixth is used over the bass, “such Bases are not true Bases, for where a sixth is to be taken, either in F sharpe, or in E sharpe [that is, E natural], or in B or in A the true Base is a third lower, F sharpe in D, E in C, B in G, A in F” (Campion [c. 1613], p. 204).

Discussions of inversions and chord roots appeared through the early eighteenth century. Werckmeister 1702, in addition to showing how knowledge of the proper root (*Wurtzel*) explains the doubling in a chord of the sixth (as discussed in Chapter 3), also speaks directly of “the inversion of the triad [*Die Versetzung der Triadum*] . . . such as E-G-C or G-C-E” (p. 6). Discussions akin to Lippius in terminology appear in two early eighteenth-century manuscript treatises by young musicians who later became major writers: Walther 1708 (p. 101) and Scheibe c.1730 (Chapters 2 and 5). Fux too explains root-position and first-inversion triads in *Gradus* (as discussed in Chapter 2). Mizler, who seems to have been unaware of Rameau's works, treats rearrangement (*Verwechselung*) of notes in a chord as everyday knowledge (Mizler 1736–1754, Vol. 1, Part 5, p. 65; Vol. 2, p. 117). Even Mattheson, who was hostile to Rameau, speaks of triadic arpeggiation (Mattheson 1739, Part 3, Chapter 12).

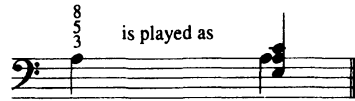
Inversional thinking entirely independent of this late-sixteenth-century and early-seventeenth-century chordal theory arose because of playing

The image shows a musical score for Example 4-3. It consists of two staves: a treble clef staff on top and a bass clef staff on the bottom. The treble staff contains four chords, each represented by a vertical line with dots indicating the notes. The bass staff contains four notes, each aligned with a chord in the treble staff. Below the bass staff, the lyrics are written: 'Lau- da- te DO- MI- NUM.' The notes in the bass staff correspond to the syllables: 'Lau-' (D), 'da-' (E), 'te' (F), and 'DO- MI- NUM.' (G).

Example 4-3. Lippius 1612, fol. H1^r; Rivera 1977, p. 48



Example 4-4. Open strings on a theorbo



Example 4-5. An A-5/3 chord on the theorbo

techniques on plucked and strummed instruments.³ In contrast to plucked lute playing, which emulated the contrapuntal texture of vocal polyphony, Iberian guitar players beginning in the late sixteenth century popularized *rasgueado* or strummed chords. To strum all the strings, players grasped chords in a fingering they could maintain for the length of a harmony. Some of these positions created triadic inversions, used interchangeably with the root-position form. *Rasgueado* technique on the guitar spread to Italy (renamed *battente*) and France by the 1620s, and to England later in the century.

Triadic inversions arose for another reason on the theorbo, a lute-like instrument used in thoroughbass accompaniments. The theorbo's upper strings were tuned like the lute in descending fourths with a single major third, but the top two strings were an octave lower than their place in the fourth-cycle (see Example 4-4). In thoroughbass realizations, the written bass would be played on a middle or lower string, while the chord was strummed across the remaining upper strings. Thus a 5/3 chord built on the top-line A in bass clef would be played as follows: the bass A would be fingered a whole step above string number 4, C would be fingered a half step above string number 3, and strings 1 and 2 would be strummed as open strings (see Example 4-5). The result is a 6/4 chord, recognized by theorbists as an inversion (*renversement*) of the proposed harmony. To preserve the integrity of the bass line in theorbo realizations, Denis Delair insists that "the bass must always precede the chord; it does not matter which [of the other notes] is sounded first or last after the bass" (Delair 1690, fol. C^v). François Campion (c. 1686–1748) supports using the guitar instead of the theorbo in accompaniments in part because "the accompanimental parts are not inverted [*renversées*]" (Campion 1716, p. 19). Various collections of theorbo tablatures also refer to inverted chords: Fleury 1660, Bartolomi 1669, and Grenerin [c. 1670].

3. For information in addition to that in the following discussion, see Christensen 1992a and Mason 1981.

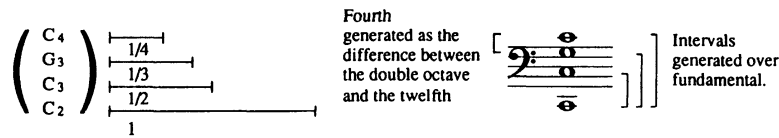
In contrast to the older belief that Rameau invented triadic inversions, or the more recent argument that German early-seventeenth-century inversive theory was soon forgotten or even “suppressed” until Rameau rediscovered inversions (Dahlhaus 1984, p. 123; Dahlhaus 1989, p. 75), it is clear that knowledge of triadic inversion was widespread during the century before Rameau’s *Traité*. Some theorists did not refer to the concept, and others may have been unsure about the exact relationship between different positions of a chord (as discussed in connection with Heinichen in Chapter 3). But it is clear that Rameau did not invent or re-invent the notion of triadic inversion.

So what did Rameau mean by his claim that “until the *Traité de l’harmonie* it was not known that a certain number of chords could join together in one”? What did he accomplish in this area that no one before him had done? And why if knowledge of triadic inversions was so widespread did it seem so marginal? First, Rameau extended inversive thinking to all chord-types, not just triads—to seventh chords, and, via his theory of subposition (discussed below), to suspensions. Second, and more important, he was the first to realize that the notion of chord roots could be the basis of a powerful explanation of harmonic progression. When he claimed that no one before him had shown how several chords were really rearrangements of a single harmony, he probably referred to his theories in this larger sense.

RAMEAU’S BASIC CHORD TYPES

Rameau built his theory of harmony on the belief that there are basically only two types of chords: the perfect chord (*accord parfait*; Rameau never uses the term *triad*) or consonant harmony, and the seventh chord or dissonant harmony. Every harmony for him is a perfect chord, a seventh chord, an inversion of these, or a derivative of a seventh chord (the added-sixth chord and chords by *subposition*, both discussed below).

By treating these types of simultaneities, and ignoring what we nowadays call nonharmonic tones other than suspensions and appoggiaturas (passing tones, neighbors, anticipations, and the like), Rameau attempted to explain the harmonies recognized by thoroughbass (though thoroughbass writers before Rameau did not of course categorize chords in his manner). Thoroughbass deals with the simultaneities that need to be figured for the performer. It generally disregards post-chordal nonharmonic tones because as a rule they do not affect what a continuo player performs and are omitted from thoroughbass figuring. Throughout his works, Rameau deals primarily with the chords that appear in French thoroughbass methods of the period. What we call post-chordal nonharmonic tones are



Example 4-6.

for Rameau “Ornamented Melody or Supposition”⁴ (Rameau 1722, Book 3, Chapter 39), or, in his later works, “grace notes” (*notes de goût*). They belong to melody, not to harmony.

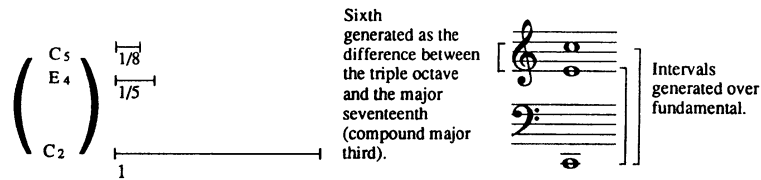
THE SOURCE OF CHORDAL INVERSION

To place his theory of chordal inversion on a solid foundation, Rameau needed a reliable way to determine the primary form of each chord type. For instance, $6/5$ chords have the same notes as 7 chords whose bass is a third lower. If Rameau could only demonstrate that each was a rearrangement of the other, he could not show whether the $6/5$ form or the 7 form was primary. Pre-Rameau theorists might well have chosen the $6/5$ form, since it was implausible that a dissonant 7 chord might be the source of the $6/5$ chord, which contained only consonances over the bass. Rameau needed to explain that certain intervals (and, hence, certain forms of a chord) were the source of others. To do this, he generates the individual consonances so that within each complementary pair of consonances (fourth-fifth and third-sixth) one is original and the other derived from it.

To accomplish this he turns in the *Traité* to the age-old technique of dividing a string. He dubs the note which sounds when an entire string vibrates the *fundamental*. From half a string, the octave of the fundamental arises. The next integral division of the string, into thirds, yields a twelfth (a compound fifth) over the fundamental. The difference between this fifth and the next octave yields the fourth. The origin of the fourth, however, is entirely unlike that of the octave and the fifth: “Only the octave and the fifth are directly generated by the fundamental sound. The fourth is merely a result of the octave, since it arises from the difference between this octave and the fifth” (Book 1, Chapter 3, Article 4) (see Example 4-6).

By distinguishing the fourth from the fifth and octave, Rameau takes a route different from most earlier theorists. Zarlino, and, indeed, theorists going back to Pythagoras, knew that string-ratio 2:1 represents the octave, 3:2 the perfect fifth, and 4:3 the perfect fourth. But for these theorists,

4. Cohen 1971 traces this meaning of the term *supposition* from the late sixteenth through the mid-eighteenth century.



Example 4-7.

the fifth and the fourth are equally original intervals. For Rameau, the fourth is not an original interval, but, as Descartes had described it, only “the shadow of the fifth” (Descartes 1618; Robert 1961, p. 24) because it merely filled in the difference between the fifth and the octave but did not itself arise over the fundamental. Thus, Rameau shows how the octave, the fifth, and the fourth in Example 4-6 all have the same fundamental sound. With the fundamental fifth and its derived fourth Rameau can now explain why a $6/4$ chord with a fourth over the bass is a derivative of a perfect chord with a fifth over the bass.

To show that $6/3$ chords are inversions of $5/3$ chords, Rameau has to demonstrate that sixths are similarly “shadows” of thirds. Rameau divides the string into five parts, yielding a compound major third (a seventeenth). The minor sixth is its complement. Thus the major third is the fundamental interval and the minor sixth the derived interval (Book 1, Chapter 3, Article 5). This enables him to explain that a $6/3$ perfect chord with a minor sixth over the bass is a derivative of a $5/3$ chord with a major third over the bass (see Example 4-7).

So far, so good. Rameau has shown how the perfect fifth and the major third appear over the fundamental, and how the perfect fourth and the minor sixth are merely complements of these two fundamental intervals. To complete his theory of triadic inversions, Rameau need only demonstrate the same relationship between the minor third and the major sixth. But this last step cannot be accomplished in this manner. Put simply, the minor third does not occur over the fundamental in any integral division of the whole string. Rameau desperately wants it to occur there: “Since all intervals are generated by the octave and begin and end there, so *should* [!] the minor third. It should not be found indirectly, between the major third and the fifth, but related directly to the fundamental sound or its octave” (Book 1, Chapter 3, Article 5). If Rameau as speculative theorist cannot demonstrate that the minor third occurs over the fundamental, he cannot demonstrate that minor triads are basic chords akin to major triads, which he as a practical musician knows to be true. Through the contorted and unconvincing reasoning that follows, Rameau insists that thirds cannot arise simultaneously when a fifth is divided; they must arise separately,

and therefore can arise in either order. (Lewin 1978 comments on this passage.) It need hardly be pointed out that this explanation is inadequate.

The derivation of the minor third was to bedevil Rameau throughout his life. With his belief that music was Natural and with his Cartesian belief in the explanatory power of numbers, Rameau never abandoned the search for an origin of the minor third. He was not alone in this search—theorists from antiquity to the present have sought the sources of their musical system in divisions of a string or, later, in harmonic resonance which is numerically the same as divisions of a string. Ultimately, the reason a solution has never been found is the fallacious basis of the search: an ethnocentric belief that music, a cultural phenomenon, is a Natural phenomenon. As Pascal put it, “What are our natural principles if not our accustomed principles? . . . a different custom will yield other natural principles” (Pascal c.1658, p. 514). Divisions of a string certainly measure intervals. But several arbitrary assumptions (or, to be kinder, several axioms) are needed if intervals and roots are to arise in an appropriate manner.

First, one must assume octave equivalence; that is, that all the string divisions that are powers of 2 (halves, fourths, eighths, sixteenths, etc.) are merely duplications of the fundamental, but that string divisions of all other powers (of 3, for instance) are different pitches. Without octave equivalence, for instance, the twelfth and its compounds, which do arise from string divisions, could not be the source of the perfect fifth. For Rameau the musician, octave equivalence seemed obvious. But in his dispute with the eminent mathematician Leonhard Euler in the 1750s, he could not disprove Euler’s assertion that octave duplications were not equivalent to the fundamental (Rameau 1752; discussed in Shirlaw 1917, pp. 274–275).

Second, one must assume that the simple numerical ratios of string divisions do in fact represent musical intervals which are rendered in practice in various systems of temperament (or that are frequently rendered “out-of-tune”). Rameau argues in later works that this problem is not serious because the small alterations arising from temperament are nearly imperceptible. But this answer denies the very premise of the investigation. The whole point of deriving intervals from small numbers is to demonstrate that the consonances can be represented by small-number ratios. If small-number ratios are perceptually equivalent to the irrational-number ratios that arise from temperament, then there is no rationale for using small-number ratios in the first place. For this argument insists that $3/2$, the ratio of the pure perfect fifth, is equivalent to the seventh power of the twelfth root of 2, the ratio of the perfect fifth in equal temperament (which Rameau supports beginning in 1737).

Third, one must exclude division of the string into sevenths. Division



Example 4-8.

into eighths is necessary if the minor sixth (8:5) is to be included among the consonances. But sevenths of the string create intervals that do not agree with Western diatonic music. Zarlino had already encountered this problem when he exalted the *senario* (the numbers 1–6), but allowed 8 in order to include the minor sixth. Put briefly, one can find a rationale for what one wants in the divisions of a string, but only by manipulating the numbers until the desired results appear.

Despite his lifelong preoccupation with deriving intervals and chords systematically from divisions of a string, or, later, from harmonic resonance which is numerically equivalent to divisions of the string, Rameau was never able to come up with a derivation of the minor third that was comparable to that of the major third. Nor was he able to come up with a derivation of the fourth degree of the scale, which likewise does not appear in harmonic resonance, that was comparable to the derivation of the fifth degree of the scale. And no later theorist has solved these problems using Rameau's or similar procedures. His attempts to do so are part of the history of ideas of the eighteenth century, with its assumptions that Nature is the source of music and that the proper numerical ratios constitute a valid explanation. This aspect of Rameau's speculative theory is covered in exhaustive detail in Shirlaw 1917. Other than commenting on his use of such reasoning, the present study will not explore further the means Rameau used to give a speculative foundation to his musical ideas or the adequacy of those means. It will concentrate instead on the application of his ideas to musical situations.

Whatever the systematic shortcomings of Rameau's derivation of the minor third, what is important to musical practice is that Rameau sorted out the consonances into fundamental ones (the perfect fifth and both sorts of thirds) and their derived forms. This was a change in perspective from Zarlino, who had derived sixths from the addition of a third to the perfect fourth. According to this traditional method, minor thirds are related to minor sixths and major thirds to major sixths: a fourth plus a minor third equals a minor sixth; a fourth plus a major third equals a major sixth. This shows how consonant $6/3$ chords have a unified sound (because the thirds and sixths are of like quality), and how the $5/3$ – $6/3$ alternation of fifth and sixth gives rise to closely related chords (see Example 4-8). But as already noted in Chapter 1, this approach precludes

The image displays two musical examples. On the left, a five-staff system illustrates a perfect cadence. The bottom staff is labeled 'Fundamental Bass'. The other four staves show the voices. Labels above the staves indicate intervals: 'Octave' and 'Fifth' above the top two staves; 'Seventh or minor dissonance' and 'Major third' between the top two staves; 'Leading tone or major dissonance' and 'Octave' between the second and third staves; 'Fifth' and 'Octave' between the third and fourth staves; and 'Dominant' and 'Tonic note or final' between the fourth and fifth staves. On the right, a two-staff version of the same cadence is shown within large brackets, with a '7' below the bass staff.

Example 4-9. Rameau 1722, Book 2, Chapter 5

a theory of chord inversions. Lippius derives sixths as inversions of thirds in his study of harmonic intervals, allowing him to present a theory of triadic inversion. But his study of melodic intervals retains a traditional derivation of sixths. Rameau was the first theorist to use a fully harmonic perspective on intervallic generation for all purposes.

THE PERFECT CHORD AND ITS FUNDAMENTAL BASS

Rameau distinguishes two different basses for a perfect chord: the actual sounding bass or the *basso continuo*, and the *fundamental bass* or *fundamental note* (*basse-fondamentale, son-fondamental*)—what we call the root. Rameau’s first example of a fundamental bass (shown in Example 4-9) illustrates not an isolated chord, but the perfect cadence, an important chord progression:⁵ “If the fundamental bass is removed [from the bottom voice] and one of the other parts is put in its place, all the resulting chords will be inversions [*renversements*] of the original chords. The harmony will remain good, for even when the fundamental bass is removed, it is always implied” (Book 2, Chapter 5).

Here and elsewhere, Rameau combines two conceptually separate aspects of fundamental bass (discussed in Keiler 1981): it can be an actual voice in the texture, and it is a structural foundation explaining the other parts. As a voice in the texture, it can appear in any register; as an explanation for the other parts, it is implicitly the underlying source. As

5. Rameau uses multiple staves to show the voice leading of each part. To facilitate legibility, these examples also appear here in a two-staff version in brackets.

a sounding part, it obeys voice-leading rules; as an explanation of the other parts, it is not part of the voice leading. Rameau's use of musical notation for these two separate aspects is akin to Schenker's use of single noteheads in a graph to denote both pitches in a score and their role in the underlying structure.

Nowadays we use Roman numerals to identify the chords, thereby separating notationally the progression of chord roots from any actual voice in the texture. Placing numbers next to a score to label the chord roots was published as early as 1766, but the practice was not widely adopted until well into the nineteenth century.

It is easy to view Roman numerals as a substitute notation for Rameau's fundamental bass notated on a separate staff. But translating Rameauian fundamental bass into Roman numerals actually marks a significant shift in perspective. A Roman numeral immediately identifies the scale-step of a chord root, but requires some calculation to identify the interval between two consecutive chord roots. That is, we must already know what the key is before we can assign Roman numerals to a chord in a given passage. But it takes some calculation in a mod-7 system to realize that the progression iii-vi may be expressed as a descending fifth just like V-I. In short, when chord roots are labelled by numbers, one begins by knowing the key and then can calculate the interval of root progression.

It is quite the reverse when the fundamental bass is notated as Rameau did. The intervallic relations among chord roots are easy to see. But to figure out the scale-step one must first decide on the key, and then figure out the interval between the chord root and the tonic of that key. As discussed below, when Rameau dealt with chord progressions, he was primarily concerned with the intervallic relationship among chord roots. Only after studying interval successions in the fundamental bass and the types of chords occurring over these intervallic successions would he decide on the key. For this reason (and others to be discussed later), many of the issues Rameau dealt with cannot easily be translated into Roman numeral notation.

THE SEVENTH CHORD AND DISSONANCE

Rameau offers two possible methods to generate the perfect chord: he divides a fifth into major and minor thirds (his "official" generation discussed above), and he stacks two thirds to add up to a perfect fifth. He applies only the second of these methods to generate the seventh chord, adding a third above a perfect chord. Such stacking of thirds is a most problematic generation in that it omits all the care that Rameau exercised in finding the root intervals over the fundamental when he generated the perfect chord.

Whatever the problems with his speculative generation of seventh

chords, Rameau's extension of the process of inversion to seventh chords solved a number of major problems concerning dissonance treatment. By treating $6/5/3$, $6/4/3$, and $6/4/2$ chords as inversions of the seventh chord, Rameau greatly simplified explanations of how to identify and resolve several dissonances. For him the chord seventh is always a seventh against the fundamental, no matter what the inversion. In a $6/5$ chord, for instance, the fifth over the bass is only an apparent consonance; its role in the chord is dissonant seventh against the fundamental. In the $4/3$ chord, the third is not a consonance but the dissonant chord seventh; the fourth is not a dissonance needing resolution, but the fundamental note of the chord—the "irregular fourth" of thoroughbass theory is no longer irregular.

The seventh chord always contains at least one dissonance, the chord seventh which resolves by descending. When a seventh chord has a major third (when it is what we call a "dominant-seventh chord"), there is a second dissonance: the diminished fifth between the third and seventh of the chord. Because both the chord seventh and the leading tone create dissonances against other members of the chord, and because they both must resolve in restricted ways, Rameau calls both of them dissonances. The chord seventh is the *minor dissonance* because it arises from a *minor* third above the perfect chord and it resolves downwards. The leading tone (*note sensible*) is the *major dissonance* because it is a *major* third and resolves upwards.

With this terminology, Rameau turns triumphantly to Zarlino's problematic recommendation that major intervals should ascend and minor intervals should descend (Part 2, Chapter 5). Rameau interprets Zarlino's statement to refer to the major and minor dissonances, no matter the actual interval over the bass. Thus, even when the minor dissonance appears as a major second (in a $6/4/2$ chord) or as a diminished fifth (in some $6/5$ chords), it remains a minor seventh that descends to resolve. As noted in Chapter 1 of this study, Zarlino's remark had been repeated by many seventeenth-century theorists, who invariably explained that the rule was unreliable. By finding an interpretation in which it always applied, Rameau had the best of two worlds: in an almost medieval way he had taken a puzzling dictum of a revered authority and unraveled its true meaning; and at the same time he was a true man of the Enlightenment, using reason to cut through a complex of dissonance rules and enunciate a single principle.

TONICS AND DOMINANTS

Because the two chord-types (perfect chords and seventh chords) occur primarily on specific scale degrees, Rameau frequently refers to them by scale-step location rather than by chord quality. Perfect chords are *tonic* chords because they occur on the tonic. And seventh chords are *dominant*

chords. A *dominant* (a seventh chord) with a major third and a minor seventh (what we call a dominant-seventh chord) is a *dominant-tonic* chord (dominant of the tonic). All other seventh chords are *simple dominants*. There is no equivalent for this terminology in modern harmonic theory, and it makes many of Rameau's ideas difficult to translate into Roman-numeral equivalents. In quoted passages and other discussions in this and the next chapter, whenever there might be a question of Rameau's terminology, a modern equivalent is placed in parentheses (as was done in this paragraph).

CHORDS BY SUBPOSITION

By introducing the seventh chord as a fundamental harmony and extending to it the principle of chord inversion, Rameau explains the resolution of thoroughbass figurings $7/5/3$, $6/5/3$, $6/4/3$, and $6/4/2$ in terms of a single chord-type. Numerous other dissonant thoroughbass figurings still awaited an explanation. Rameau probably had observed similarities between the resolutions of these dissonances and the two types of dissonances in a seventh chord. While most suspensions resolve downward, resembling a minor dissonance or chord seventh, other suspensions resolve upward, resembling a major dissonance or leading tone. If Rameau could explain all descending suspensions as minor dissonances (chord sevenths) and all ascending suspensions as major dissonances (leading tones), the seventh chord would become the source of all conchordal dissonances.

To turn suspensions into chord sevenths or leading tones, Rameau placed a new bass a third or a fifth below the fundamental bass of a seventh chord, generating ninth chords and eleventh chords. A third below a seventh chord created a ninth chord; a fifth below a seventh chord created an eleventh chord. Example 4-10 includes four such chords on the downbeats of measures 2–5. The next-to-lowest staff is the sounding bass. The lowest staff contains the fundamental bass (the chord roots).

The crucial suspensions resolve as if they were chord sevenths or leading tones in a seventh chord. In measure 2, the top-voice A-G is a 9–8 suspension over the bass G. Rameau explains that the soprano A resolves as a seventh over B \flat , with the bass G below that B \flat . In measures 3 and 4 both the top-voice G and the inner-voice C \sharp resolve normally as chord seventh and leading tone of an A 7 chord despite the fact that the bass in measure 3 is a third below A and the bass in measure 4 is a fifth below A. In the penultimate measure, the inner-voice D resolves as if it were a chord seventh against E. Rameau achieves precisely what he set out to do. Several different figurings (9/ \flat , 5 \sharp , 7 \sharp , 4- \sharp) are all shown to be seventh chords resolving just as they should. The same process can be extended to other figurings.

Rameau referred to this process by the French term *supposition*. This

Example 4-10. Rameau 1722, Book 2, Chapter 10

was a new meaning of the term. It is a direct derivation from the Latin origin of the word: the prefix *sub-* (meaning *below*) and *positio* (participle of the verb *ponere, to place*), with double *p* replacing *bp*. In the sense that Rameau uses the term, it quite literally means “to place below,” a meaning obsolete in the modern English word *supposition*. Hence, Rameau’s meaning is rendered here by *subposition*.⁶

In a chord by subposition, the seventh chord explains the dissonance while the subposed bass remains separate. The portion of a subposed chord that is a seventh chord (the upper four notes of a ninth or eleventh

6. Some writers in English retain *supposition* (Shirlaw 1917), some use *sub-position* (Ferris 1959, Wason 1985), and others use *subposition* (Baker 1988, which presents on p. 27 n. 45 reasoning similar to that given here).

chord) can be inverted or rearranged in any manner, just like any seventh chord. This rearrangement is possible because no matter where the dissonances occur, they will resolve in the same manner. By contrast, the subposed bass cannot participate in any such rearrangements because, quite simply, it is not a part of the seventh chord. If it were to participate in inversions, the resulting chord could end up looking like a scalar collection rather than a harmony; for instance, a C-eleventh chord (C/G-B-D-F) could be voiced as B-C-D-F-G. These are the reasons for Rameau's seemingly arbitrary assertion that since subposed chords exceed the span of an octave (in his terminology, they are *supernumerary*), they cannot be inverted.

Rameau's delight over his discovery that all descending dissonances could be explained as chord sevenths and that all ascending dissonances could be explained as leading tones is understandable. For by extending seventh chords to chords by subposition, Rameau was now able to explain the voice leading of nearly every thoroughbass figuring in terms of a perfect chord or a seventh chord. The few exceptions are the diminished seventh chord (discussed below) and occasional other chords. It is easy nowadays to pass over this achievement and see only the problematic areas and troubling influences of subposed chords. For two centuries now, we have been sorting out the harmonies of tonal compositions into chords and nonharmonic tones. But no one had done that before Rameau.

In his enthusiasm, Rameau neglected to state in a prominent position in the *Traité* that subposition is essentially a way to explain suspensions. He does include that information, but only after repeated explanations of what notes to include in ninth and eleventh chords and why the subposed bass does not participate in inversions (Book 1, Chapters 6–7; Book 2, Chapters 10–11; Book 3, Chapters 29–32). Not until the very end of Book 3, Chapter 31, does Rameau remark that eleventh chords yield “pleasant suspensions,” and that “Chords by subposition serve only to suspend [that is, delay] sounds which should be heard naturally.” Similar remarks appear in Book 3, Chapter 32, where Rameau explains that, as shown in Example 4-11, “the sounds labeled A suspend [that is, delay] the sounds labeled B, and the lines designate the natural progression of the sounds labeled A [that is, the lines show how the notes labeled A follow their ‘natural’ paths and resolve as members of a seventh chord].”⁷

Rameau's later works more explicitly relate subposition and suspensions. Chapter 16 of his *Generation* (1737), on the “Origin of Subposition

7. “*Les Sons A, suspendent les Sons B . . .*” Rameau uses the verb *suspendre* in a meaning that its cognate lacks in English. When we say A suspends B we mean that A holds onto B longer than B would otherwise last. Rameau means exactly the opposite: that A lasts longer (is suspended) and delays B. The meaning Rameau imparts to the verb *suspendre* was used by other French theorists of the period (Campion 1716, p. 11).

Example 4-11. Rameau 1722, Book 3, Chapter 32

and Suspension,” begins by noting that suspension “is but a consequence” of subposition. In that chapter and elsewhere, his text explains notes as suspensions while his fundamental bass illustrates chords by subposition (Rameau 1737, Chapter 18, Article 1, Part 1; Hayes 1974b, p. 119). *Le Guide du Compositeur*, a treatise by Rameau pupil Pietro Gianotti (?–1765) that is closely based on Rameau’s own unpublished manuscript of c.1740 (Christensen 1990a), is even more specific about the role of subposition: “the suspension has no fundamental bass, and if one gives it one, it is most frequently done only to see that the suspension takes its origin from subposition. But since that knowledge serves no purpose in practice, it is better, upon recognizing the suspended note, to omit it from consideration and to give to it the fundamental bass that the suspended consonance [the delayed consonance] should have” (p. 271). Rameau’s last practical work, the *Code* of 1761, likewise notes that “the fundamental is only given to satisfy those who are curious about the source of the harmony” (Rameau [1761], p. 60).

Some historians have argued that in the *Traité*, Rameau considered suspensions as isolated verticalities and modified this position to recognize the melodic role of suspensions only in later works (Ferris 1959, pp. 232 and 238–239; Cohen 1980, p. 569). But the examples and citations just introduced make it clear that he always recognized that subposition was a way of providing a speculative theoretical explanation for the linear motion of suspensions (Christensen 1987a, pp. 28–32).

Possibly because Rameau did not articulate more clearly the purpose of subposed chords, many later theorists included absurd collections of stacked thirds as isolated verticalities, believing they were following Rameau in doing so. By presenting such isolated verticalities, however, these theorists went against Rameau’s whole purpose in developing his theory of subposition—to place suspension patterns in a linear context and show how the suspensions had to resolve.

All this is not to say that Rameau’s theory of subposition is without its problems. First, if the aim of the fundamental bass is to represent root

Example 4-12. Delair 1690, fol. D^v

progressions, how is it that measures 3 and 4 of Example 4-10, in which an entire chord must resolve, are akin to measure 5, in which just one note has to resolve? All three measures are fifth-progressions in Rameau's fundamental bass.

A second problem is more critical. Are the subposed chord and the chord of resolution two separate harmonies, or do they represent a single harmony? If the latter is the case, does the bass of the subposed chord anticipate the following harmony, or does it represent the arrival on the second harmony with the upper voices delayed? In measure 3 of Example 4-10, for instance, does the bass F represent an F harmony, or is F part of the following D harmony? If the latter is the case, does F anticipate the D harmony, or does F announce the arrival of the D harmony, stated with suspensions that resolve into the D harmony?

Although Rameau does not address these questions, evidence points to contradictory answers. By notating the subposed chord and the chord of resolution with two separate fundamental basses, he implies they are two separate harmonies. If this is so, then Rameau was thinking in terms of thoroughbass, in which a suspension chord and its resolution had separate figurings. For instance, in an example of suspended notes, Delair makes no distinction between what modern theory calls a seventh chord (at A), which requires a change of harmony to resolve, and what modern theory treats as a single note resolving into a chord already present (at B)—in each case, there is a “chord of the second” followed by another chord on another bass pitch (see Example 4-12). Fuxian species counterpoint offers quite a different perspective, explaining suspensions as delays of a note within a single harmony. But because of the restraints of the contrapuntal species, seventh chords hardly ever arise, so Fux does not have to deal with them.

Other passages in the *Traité* suggest that Rameau thought of the subposed chord and the chord of resolution as a single harmony. When he explains that subposed chords “serve only to suspend sounds which should be heard naturally,” he implies that the subposed bass represents the arrival on a harmony, and that the upper parts delay their motion into the remaining notes of that harmony. If that is the case, then Rameau agrees

Example 4-13. Rameau 1722, Book 3, Chapter 30, mm. 9–10

with Fux's notion of suspensions and the modern view of suspensions. In this stance, he differs with C. P. E. Bach, who regards the voices simultaneous with a suspension as *anticipations* of the following harmony (Bach 1762, Chapter 1; Mitchell 1949, p. 193).

If Rameau intends the main harmonic arrival to occur on the downbeat, then in effect the subposed bass and the fundamental bass have switched roles. The fundamental bass, whose purpose it is to explain the underlying harmony, only shows an elaborating harmony. And the subposed bass, which Rameau explains as an note added to the chord, shows the essential harmony.

The point of arrival of the essential harmony is further complicated because Rameau generally forbids harmonic syncopation in a fundamental bass (a harmony beginning on a relatively weak metric position and continuing through the next strong beat; Book 3, Chapter 40).⁸ If a subposed chord would create syncopated harmonic rhythm, Rameau simply figures a suspension over the fundamental bass in the manner of a thoroughbass (see Example 4-13). In the last measure, Rameau analyzes the suspension as 4–3 over a single chord. To have explained it as a subposed bass would have given rise to harmonic syncopation in the fundamental bass.

The chord in the last measure is the same harmony labeled as a subposed chord in measure 5 of Example 4-10. Ironically, it is in Example 4-13 that explanation as a chord by subposition would make more sense, for there the preceding harmony actually establishes the D as a dissonant seventh against E, which dissonance then remains until it resolves on the second half of the following measure. These two explanations of the same progression raise the question of where the dominant arrives: on the second

8. Rameau only rarely allows harmonic syncopation in a fundamental bass (Rameau 1722, Book 2, Chapter 17, Article 6; Rameau [1761], p. 5 of examples, "2nd N," mm. 1–2).

half of the measure (as in m. 5 of Example 4-10) or on the downbeat (as in m. 2 of Example 4-13)? Rameau does not address the issue.

Despite their problems, these two interpretations demonstrate Rameau's desire to have his examples make sense to him as a musician. He opts for using the thoroughbass notation that he believes is a less satisfactory theoretical explanation (Example 4-13) to avoid a harmonic syncopation that is more problematic. (Two other such analyses of 4-3 suspensions occur in the last example of Book 3, Chapter 38, mm. 14 and 25.) As Rameau applies it, subposition requires the theorist to study the context of a suspension to decide how to render it in the fundamental bass. Chord analysis is not a mechanical task of lining up the vertical notes and stacking them in thirds to find the root, as it became for some later musicians.

In sum, Rameau's theory of subposition has many problematic aspects that Rameau neither answers nor, in some cases, even addresses. But for him it was an attempt at a single explanation for resolution of all suspended notes, and it did allow him to explain almost all thoroughbass chords as perfect chords, seventh chords, or their derivatives.

Within a generation, harmonic theorists proposed what has remained the modern approach to suspensions by distinguishing two fundamentally different types of suspended notes: chord sevenths that require a change of root to resolve and suspensions that can resolve into a chord already present. First suggested by the German theorist Georg Andreas Sorge (1703-1778) around the middle of the century, the distinction was formalized by Kirnberger in the 1770s with the labels *essential* and *incidental* dissonances. This distinction would have been inconceivable without Rameau's notions of seventh chords and of chord roots.

FOURTHS VS. ELEVENTHS

Just as thoroughbass theory had differentiated the second and ninth by their resolutions, Rameau believed that fourths should be differentiated from elevenths (Book 1, Chapter 6; Book 2, Chapter 11; Book 3, Chapter 15). Rameau insists that the fourth is the inversion of a fifth and is a consonant interval; the eleventh, however, is always a dissonance, a seventh over the fundamental bass in a subposed eleventh chord. However, when he notates 4-3 suspensions, he uses the standard numbering and not 11-10.

THE DIMINISHED SEVENTH CHORD

Rameau explains that the diminished seventh chord arises *by borrowing* (*par emprunt*) when the sixth scale degree in minor replaces the root of a dominant seventh chord (F-G#-B-D instead of E-G#-B-D; Book 1, Chapter 8, Article 7; Book 2, Chapter 12; Book 3, Chapter 33). He calls it the chord of the augmented second, not a type of "diminished chord," reflect-

ing the fact that E, not G#, is the fundamental bass. By deriving the diminished seventh from the dominant seventh, Rameau formalized observations other theorists had made about the interchangeability of these chords in many cases (Campion 1716, p. 11; cited here in Ex. 3-19, note 12).

In later works, Rameau is ambivalent about the fundamental bass of the diminished seventh chord, but he always recognizes it as a harmony parallel in function to the dominant seventh. In his last discussion, he explains that in “the chord of minor thirds” (*l'accord de petites tierces*) the leading tone is an “implied [*censée*] fundamental . . . and the rules given regarding that note as well as its chord [the “leading tone chord” or *l'accord sensible*, synonymous with the “dominant-tonic”] do not vary in the slightest; it is always the leading-tone chord, that which carries the dominant-tonic, in which its [the dominant’s] upper semitone is substituted” (Rameau [1761], p. 65).

Chord Successions

Having established that two fundamental chord-types, the perfect chord and the seventh chord, were the basis of all harmonies, Rameau was now able for the very first time to consider the nature of harmonic succession. The issues he dealt with go to the heart of musical structure and have remained the focus of much music theory since his time. What is the nature of chord successions, both local and long-range? What different kinds of harmonic connections are there? Are all chords in a progression of equal harmonic weight? How do we know when a progression comes to an end? And how does the vertical dimension (the structure of simultaneities) in music relate to the horizontal (the progression of simultaneities)?

CHORD-TO-CHORD SUCCESSIONS

For Rameau, the nature of harmonic successions depends on the intervals in the fundamental bass. Rameau posits a close relationship between the structure of harmonies and their connection from one to another, arguing that the very intervals contained in chords connect one chord to another (Book 2, Chapter 1; discussed in Lewin 1978). Thus the fundamental bass should move by perfect fifths and thirds, the two intervals in the perfect chord. In his later works, Rameau attempted to demonstrate that all fundamental-bass successions were by fifths or thirds. But in the *Traité*, he notes that dissonances and license (a concept he uses when his theory becomes too restrictive) allow the fundamental bass to move by second. As a result, the fundamental bass can move by any interval.

Example 4-14. Rameau 1722, Book 2, Chapter 7

CADENCES

Not all these successions are of equal structural import. Most important are *cadences* (Book 2, Chapters 5–9), a term Rameau uses to denote a type of harmonic progression, not just the concluding motion of a phrase. Rameau is not as explicit about this definition as is his pupil Jean Laurent de Béthizy (1709–1781): “cadence in general signifies the passage from one note to another note which is over a different fundamental than that to which the first note belongs” (Béthizy 1754, p. 173).

There are two basic types of cadences, each with its own characteristic dissonance. The *perfect cadence* is a motion down by fifth (from dominant to tonic) in which the first harmony is a seventh chord whose urge to resolve propels the progression. The *irregular cadence* is a motion up by fifth (from tonic to dominant, or from the fourth scale step to the tonic).⁹ The first harmony in an irregular cadence contains a special dissonance—an added sixth—whose urge to resolve propels the progression (see Example 4-14). This added-sixth chord is equivalent in pitch to a D-minor seventh chord. But Rameau explains that the fundamental bass of this chord is F. The D is a dissonance added to the perfect chord, a type of major dissonance that must rise to resolve.

Rameau uses his added-sixth chord to explain a progression from the 1699 composition treatise of Charles Masson (?-?). Masson used the example (4-15) to illustrate the use of the tritone approaching a cadence. Rameau omits the bracketed portion of Masson’s example. Since Rameau views the 6/4 chord as a tonic chord, he cannot regard the alto G as a

9. In later works, Rameau also uses the term *imperfect cadence* to refer to progressions up a fifth (Rameau 1737, Chapter 6, Article 7). The modern term *plagal cadence* appeared around the turn of the nineteenth century (Catel 1802, p. 34).

Example 4-15. Masson 1699, p. 99; Rameau 1722, Book 2, Chapter 7.
Rameau omits the bracketed portion of Masson's example.

chord seventh because it does not resolve as a seventh. If the G is not a chord seventh, the A must be the added note, a sixth above the fundamental bass. On his terms, Rameau is consistent. But in terms of the entire progression, his interpretation is clearly problematic. In his later works, beginning with the manuscript treatise *L'art de la basse fondamentale* (c. 1740), Rameau changed his mind, and henceforth viewed the cadential 6/4 as a pair of suspensions over the dominant (Rameau [1761], p. 54).

Though the example of an added sixth that he uses comes from Masson 1699, Rameau may have gotten the idea for this chord from Delair 1690, which he deemed the most praiseworthy thoroughbass method (Rameau CTW 1, p. 19; Rameau 1732, p. 5; Hayes 1974a, p. 7). Delair recommends that when perfect chords descend by a fifth the player should add a seventh after the first chord, and when perfect chords rise by a fifth, the player should add a sixth after the first chord (fol. H^r) (see Example 4-16). Delair offered this as a suggestion. But Rameau developed these added dissonances into a general principle of harmonic progression.

A FUNCTIONAL ROLE FOR DISSONANCES AND A THEORY OF HARMONIC CONTINUITY

By using the characteristic dissonances of each cadence as part of the explanation for the harmonic drive of the progression, Rameau takes an

Example 4-16. Delair 1690, fol. H^r

old idea and gives it a wider application. The notion of moving from imperfection to perfection had long figured in explanations of cadences (dissonances and imperfect consonances to a perfect consonance). Indeed, Tinctoris and others called cadences *perfections*. Rameau extended this notion to all chord progressions within a phrase. If two notes of the fundamental bass both “bore a perfect chord, the mind, not desiring anything more after such a chord, would be uncertain upon which of these two sounds to rest. Dissonance seems needed here in order that its harshness should make the listener desire the rest which follows” (Book 2, Chapter 2). “Far from dissonance being an embarrassment in composition, it facilitates its course” (Book 3, Chapter 7; extended discussion in Rameau 1726, Chapter 11). For Rameau, a chord with a consonance is a tonic; only dissonances can disturb its implication of a point of repose. In later writings, Rameau expanded this functional role of dissonance into a comprehensive explanation for chordal connections and the placement of chords within a key. Even if the dissonances were not actually present, Rameau argued that they were implied. Since Rameau developed these ideas much more fully in later works, they are discussed in Chapter 5.

With perfect and irregular cadences and their characteristic dissonances as models for directed harmonic motion leading to a conclusion, Rameau asks why it is that harmonic motion does not continually halt every time the fundamental bass falls or rises by a fifth. To answer this question, he turns to Zarlino’s notion of cadential evasion as a means of extending the span of musical motion. This tenet recurs in numerous seventeenth and early eighteenth-century writings (Werckmeister 1702, pp. 50–51; Brosard 1703, article *motivo*). Rameau reworks the idea from his harmonic perspective.

Complete cadences can be evaded by inverting one or both chords in a progression (Book 2, Chapter 8), by adding a dissonance to a consonant chord of arrival, thereby requiring the new dissonance to resolve, or by making the third of a dominant-tonic chord (a dominant-seventh chord) minor so that the chord lacks the power of making the next chord into a tonic (Book 2, Chapter 9). Or a perfect cadence can be avoided entirely by having the dominant resolve up a step to form a *broken cadence* (*cadence rompuë*), what we call a deceptive cadence (Book 2, Chapter 6).

Taken together, Rameau’s notion of characteristic dissonances on all chords that are not tonic chords and his notion of harmonic successions as a series of continually evaded cadences is the first attempt to explain the sense of continuing motion created by harmonic successions. But it is inadequate for three reasons. First, it assumes a one-to-one relation between consonance and tonal stability. In effect, Rameau argues that a consonant chord is a tonic and therefore if we know it is not a conclusive tonic, it must be because we hear a dissonance (a chord seventh or added

Example 4-17. Rameau 1722, Book 2, Chapter 17, Article 2

sixth), whether actual or implied. Surely there are factors other than consonance that make a chord a convincing tonic.

Second, Rameau’s explanation is a point-to-point approach. It assumes that we hear a continuous phrase as a series of short motions that are continually prevented from coming to a conclusion by an added dissonance or an irregular voice leading.

Third, Rameau’s cadence-oriented harmonic progressions are incapable of dealing with progressions where the root movement does not at all resemble a cadence. In Example 4-17 the contorted fundamental bass under a series of stepwise sixth chords speaks for itself. Basically, since this progression is not modeled on root progressions by fifth, Rameau cannot explain its origin. He does not condemn the progression; he just cannot fit it into his cadence-oriented notion of harmony. When he referred to this progression in 1737, he virtually admitted that he could not explain it: “the sole exception to our general rules [of harmonic succession] . . . is the ability to have several tonics [perfect chords] immediately following one another where there is no connection among them; this is only done in inversion” (Rameau 1737, p. 189). It seems never to have occurred to him that harmonies could relate to one another in meaningful ways other than in terms of cadential progressions or their imitation.

LARGE-SCALE HARMONIC PROGRESSIONS WITHIN A KEY

As in contemporary counterpoint or thoroughbass manuals, most discussions in the *Traité* concern connections between consecutive harmonies or even within a single harmony (as with suspensions explained by subposed chords). Only occasionally does Rameau study a larger context, as when he recasts into his own terms a common rule for unfigured basses. Instead of stating that the bass should carry a 6/3 chord when moving by third to or from a perfect chord, Rameau extends the rule to refer to longer-range motions involving these notes, not only to local skips by a third: “All notes found a third above or below the tonic or the dominant [these being

The image shows a musical score for Example 4-18. It consists of two staves: a treble staff and a bass staff. The treble staff contains several chords, some of which are marked with a plus sign (+) or an asterisk (*). The bass staff contains a sequence of notes with figured bass notation below them. The figures are: 6 6, 6, 6, 6, 6, 6, 6, 6. There are also some symbols like 's' and 'f' in the bass staff. The asterisk and plus symbols are placed above the bass staff notes.

Example 4-18. Rameau 1722, Book 3, Chapter 11. The symbols * and + replace Rameau's clumsy letter-identifications.

The image shows a musical score for Example 4-19. It consists of three staves: a treble staff, a middle staff labeled 'Basso continuo', and a bottom staff labeled 'Fundamental bass'. The treble staff contains a melodic line. The Basso continuo staff contains a line of notes with figured bass notation below them: 4, 6, 6, 5, 4, 7. The Fundamental bass staff contains a line of notes with figured bass notation below them: 7, 7, 7, 7, 4, 7. The Basso continuo staff also has a 's' symbol at the beginning.

Example 4-19. Rameau 1722, Book 3, Chapter 41, mm. 1-4

the only scale steps that Rameau believes merit perfect chords] should bear sixth chords, when the progression of the bass *leads to* one of these two notes” (Book 3, Chapter 11; emphasis added) (see Example 4-18).¹⁰ Rameau explains that the asterisked notes require a triad and are goals, so that those chords with + use sixth chords. By implication, the remaining harmonies “lead to” these notes.

Another discussion involving larger contexts occurs in Book 3, Chapter 41, “How to Compose a Basso Continuo below a Treble.” His example, one of the few resembling an actual composition, opens with the phrase shown in Example 4-19.

“In the first and second measures of the fundamental bass, there are two equal progressions [tonic to dominant]. I reserve the progression most closely related to the cadence [that is, the progression in root position] for the second measure, because this is where the cadence occurs normally [that is, on a downbeat]; notice that the cadence is irregular here and perfect in the fourth measure.” This discussion touches on the roles of various types of harmonic progressions within phrases: when to use root-

10. On the downbeat of measure 3, Rameau has E in the upper voice; this is emended to agree with the figuring. Rameau does not mention the parallel fifths between measures 3 and 4.

Fundamental bass

Example 4-20. Rameau 1726, p. 68

position chords versus inverted chords, and when to use irregular versus perfect cadences.

But Rameau never addresses this issue comprehensively as some theorists later in the century were to do (especially Koch). His primary interest is in the local function of harmonies and the way those local movements add up to a larger phrase. Consider his explanation of the progression in Example 4-20, from the *Nouveau système*:

Suppose that the *key of G* is announced at *L* [because a perfect chord appears there] and that one wished to continue [in that key]; the *A* (note *M*), as a fundamental, should support the *seventh* in its harmony, and then the same *dissonance* should exist in all the chords until that of the *principal sound* [or tonic]. The *connection* begins from *A* to *B* where the *seventh B* is *prepared* by *A*; then this *seventh* is *resolved* at *C* so that the *connection* is evident in the three successive chords which include *A*, *B*, and *C*; and *C* as the *leading tone* creates the desire for *D*. While on the one hand the *connection* ends at *C*, there begins another at *G* which *prepares* the *seventh H*, which *seventh* then *resolves* at *J*.

Accordingly, the keys of *fundamental sounds M* and *N* can never seem permanent *keys*, and the key of *L* or *P* is always present. (p. 69, Rameau's emphases)

Despite his emphasis on chord-to-chord successions here, Rameau does deal with how a key is expressed, how consonance and dissonance contribute to this, and how various voice-leading patterns interlock until the cadence of this “harmonic phrase of the octave” (as Clement 1758, p. 9, refers to this pattern). His discussion predicates the concepts of interval-roots and chord-roots for triads and seventh chords, the notion of a discrete number of chord-types, the functional placement of those harmonies on different scale degrees, the key-defining roles of consonance and dissonance, and the notion of harmonies fulfilling their roles between key-defining chords—all theoretical issues introduced by Rameau. No

other school of early eighteenth-century theory was even aware of most of these issues.

Practical Applications

As Rameau notes in his preface, Books 3 and 4 of the *Traité* (on composition and accompaniment) are more practical than Books 1 and 2. Both owe much to thoroughbass. Like that approach, Rameau starts instruction with four-voice writing, and is always more concerned with the structure of the bass and the chords built upon the bass than with the melodic construction of the upper voices. Unlike contemporaneous thoroughbass methods, Rameau's theory is based on perfect chords, seventh chords, and their interaction. Book 3 recapitulates much of the material in Books 1 and 2, but without the speculative (mathematical) bases and many of the arguments. It begins with the fundamental bass, triads, seventh chords, and chord progressions, applying these materials to compositional situations. In explaining which chords belong on which scale steps, for instance, Rameau does not simply list the figuring of those chords, as Heinichen or any of the other thoroughbass theorists dealing with unfigured basses do. Instead, he discusses the chords and their inversions (Book 3, Chapter 9), drawing parallels between different progressions that share fundamental-bass motions. He draws one such comparison between what we call ii_3^6-V and V_3^6-I , showing that in both cases the fundamental bass descends a fifth and the first chord moves to a triadic goal (see Example 4-21). This leads to his explanation of a secondary-dominant function:

The composer is thus free to make the bass proceed by a tone or by a semitone, even if he should be in a key in which the semitone is not appropriate; for since the dominant can be treated as a tonic note [in that it can support a perfect chord], it may be approached using all those sounds which naturally precede a tonic note . . . It is by means of the difference between the progression of a tone and a semitone ascending to the note bearing the perfect chord that we differentiate a dominant and a tonic note . . . [But]

6
5

Fourth note
Dominant
Leading tone
Tonic note

Example 4-21. Rameau 1722, Book 3, Chapter 11

even if this progression of a semitone is used, thus giving a dominant all the attributes of a tonic note, we may still continue after this dominant (which would then appear to be a tonic note) in the original key. (Book 3, Chapter 11)

Practical concerns notwithstanding, Rameau's discussion of composition in much of Book 3 remains largely theoretical. Not until Chapter 35 is there an example of "real" music, as opposed to a schematic representation of a harmonic progression in whole notes.

The situation is similar in Book 4 on accompaniment (thoroughbass). Rameau covers most of the materials found in the more complete thoroughbass manuals, but in a new ordering, and with new emphases. He begins with the perfect chord and seventh chord and their inversions and repeatedly relates all figurings to those basic harmonies and their progressions.

Harmony vs. Melody

One of the major controversies surrounding Rameau's approach to music concerns his belief that harmony is the source of melody. Since Johann Mattheson (1681–1764) in the 1730s, Rameau's opponents have read this as a slogan denying the melodic element in music. Indeed, nearly every eighteenth-century writer had something to say on the primacy of melody vs. harmony. From the beginning, much of the controversy concerning Rameau's stance has been over statements taken out of context and outright misunderstandings. It may well be that Mattheson, for instance, misread Rameau, and thought that Rameau was promoting the *stile antico* and denigrating *galant* melody (Rameau CTW 3, xxxi–xxxiv). As composer and theorist Rameau was fully aware of the importance of melody. Just like Fux, Rameau urges that in a successful piece "each part should have a flowing and graceful melody" (Rameau 1722, Book 3, Chapter 43). Also like Fux in *Gradus* (and unlike authors of thoroughbass manuals), Rameau frequently writes his musical examples on multiple staves, emphasizing the propriety of each voice. In practical discussions, Rameau repeatedly suggests that one might begin composing by writing a melody (Rameau 1722, Book 2, Chapter 28, and Book 3, Chapter 40; Rameau 1737, Chapter 18; Rameau [1761], Chapter 8). In recurring discussions of chord progressions, Rameau explains how the propriety of various types of harmonic motions depends upon their placement within a well-constructed phrase.

But for Rameau these are all practical considerations, none of which are capable of indicating to him that melody is supreme. From his theoretical perspective, musicians are wrong when they believe

that harmony arises from melody since the melodies produced by each voice come together to form the harmony. It is first necessary, however, to find a course for each voice which will permit them all to harmonize well together. No matter what melodic progression is used for each individual part, the voices will join together to form a good harmony only with great difficulty, if indeed at all, unless the progressions are dictated by the rules of harmony. (Rameau 1722, Book 2, Chapter 19)

Read in this context, Rameau's reasoning is akin to Fux's explanation of how the melodies in a multi-part counterpoint exercise interact to connect the notes of one triad to another.

Rameau also came to believe that the source of melodic expression lay not in a melody, but in the underlying harmonic progressions. As proof, he illustrates seventy-nine different harmonic progressions supporting the ascending melodic fourth G-C, arguing that each imparts a different affect to the melodic interval (Rameau 1726, Chapter 8). In the *Traité*, Rameau had not been so entirely convinced that expression was so dependent upon harmony: "Melody has no less expressive force than harmony, but giving definite rules for its use is almost impossible, since good taste plays a greater part in this than anything else. We shall leave to privileged geniuses the pleasure of distinguishing themselves in this domain on which depends almost all the strength of sentiment" (Rameau 1722, Book 2, Chapter 20).

Some of the heated polemic over the primacy of harmony and melody died down by the end of the century. Heinrich Christoph Koch (1749–1816), the most important theorist of the last two decades of the century, probably summed it up the best by insisting that both melody and harmony were fully complementary. For him, the best melody was "melody conceived harmonically."

Rameau's Achievements in the *Traité*

In his *Traité*, Rameau introduced a harmonic theory capable of explaining simultaneities and voice leading in contemporary music. Though he was an innovator and not a theorist contributing to a long tradition (like Fux and Heinichen, for instance), his works were taken under consideration throughout Europe even during the 1720s. In France, Père Louis Bertrand Castel (1688–1757), at that time Rameau's friend, wrote about the influence of the *Traité* in 1728: "Its success surpassed the hopes of the author . . . The public has ratified the new system . . . It is uncommon to see a somewhat superior system, when it is still new, overcome old prejudice and routine in such a short time" (Castel 1728, pp. 472–473). Castel took note of some resistance to his ideas—but certainly Rameau was not being ignored. In Germany, Christoph Gottlob Schröter (1699–1782) reports that he studied the *Traité* in Jena in 1724 with his teacher Johann Nicolaus



Example 4-22. Kellner 1732, p. 86, ex. 1

Bach (1669–1753), one of Johann Sebastian’s cousins (Schröter 1772, p. x). Heinichen’s *Der Generalbass* (1728) cites Rameau in several passages, and it is likely that he derived his ideas on triadic and seventh-chord inversions from the *Traité*. Considering that references to the *Traité* all occur in late additions to this book, it is significant that Heinichen cites Rameau’s new work almost as much as any other work on thoroughbass. In Sweden, two dissertations at the University of Uppsala in 1727 and 1728 acknowledged the *Traité* (Westbladh 1727 and Löfgrön 1728, neither of which is musically sophisticated).

An indication of the extent to which Rameau’s understanding of chords, inversions, and progressions were rapidly incorporated into common understanding is found in the 1732 thoroughbass manual of David Kellner (c. 1670–1748), probably the best-seller among such works for the remainder of the century with numerous reprints and translations. It is a relatively short work, explaining matters simply, borrowing freely though without acknowledgement from Heinichen’s voluminous work of 1728. The subject of inversions comes up in the seventh and last chapter, which deals with dissonances in a traditional thoroughbass manner. At the end of the chapter, Kellner treats situations where dissonances succeed one another. Following Heinichen, and adopting two of his three examples,¹¹ Kellner explains that such situations often involve an inversion or rearrangement (*Umwendung*) of the dissonant harmony (see Example 4-22). “In the first example is D with 6/4 + 2; then, in the notes over the following G#, the dissonance is only rearranged; and because after the first D the resolution should be C-E-A, this very harmony then follows over the third note, for the chord A-C-E is only a rearrangement of C-E-A” (p. 86). Kellner then notes that such situations usually involve four types of seventh chords, each of which can occur in three inversions (see Example 4-23). This is introduced with no fanfare or any suggestion (as with Heinichen’s explanation of inversions) that this is a new or experimental idea. It is significant that Kellner lists the root-position chord first. Heinichen had begun his listing of inversions with different forms: from the chord of the second (D-E-G#-B), the chord of the diminished fifth (E-C-G-Bb), and the

11. The first two examples on p. 86 (1732 edition) in Kellner are derived from Heinichen 1728, pp. 625 (first example) and 627 (first example).

Example 4-23. Kellner 1732, pp. 86–87; scored from tablature, with minor errors emended

chord of the diminished seventh (G#-B-D-F) (Heinichen 1728, pp. 624–625).

Kellner's presentation offers seventh chords and their inversions as basic harmonies and the notion that the progression from one harmony to another is essentially the same no matter what position the chords appear in. In this manner, Rameau's ideas began to permeate general musical discourse. They answered a need among musicians for a new way of organizing and explaining harmonies and their successions. Fuxian counterpoint was capable of dealing with some aspects of musical structure, but Fux's own inability to deal with relatively simple harmonies in the recitative cited in Example 2-7 demonstrate the inadequacy of that approach in explaining modern harmony. Musicians also sought respite from the burgeoning harmonies, rules, and exceptions of contemporary thoroughbass manuals. By reducing all harmonies to triads and seventh chords with or without added notes, and by explaining all successions among these harmonies in terms of fundamental-bass progressions, Rameau pointed the way out of the difficulties of counterpoint and thoroughbass. The theoretical battles involving Rameau and others later in the century generally took place not over whether to accept the inversions of triads and seventh chords, the notion of chord roots, and the concept of harmonic progressions, but how best to explain these concepts and put them into use.