

THOROUGHBASS AS MUSIC THEORY

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Thoroughbass is typically understood today as a largely practical discipline of music, one in which the keyboardist learns to play (or “realize”) the chords encoded in figured-bass notation in some stylistically-appropriate manner.¹ It is not surprising, then, that the vast majority of didactic literature used to teach thoroughbass in the 17th and 18th centuries emphasizes this mechanical aspect of chord realization. It is true that this practice is one that may at times blur the boundaries of compositional creativity, or musical *poesis*. (The skills needed for the realization of the thoroughbass and those for compositions were closely related in the Baroque musical world; indeed for many pedagogues, they were viewed as complementary disciplines.)² But thoroughbass nonetheless remained a quintessentially practical skill of music, even if it was a skill demanding a strong “poetic” component of creativity and taste.

It may come as a surprise, then, for us to learn that thoroughbass was also deeply implicated in the speculative music theory of the *Zeitalter des Generalbasses*, as Hugo Riemann designated the period from 1600 to 1750. That is to say, the many challenges of realizing a figured bass for a performer of that time also presented explanatory challenges to speculatively-minded theorists. The pedagogical mnemonics by which figured-bass was taught to young musicians became a surprisingly powerful instigation for remarkable developments in the area of tonal music theory. At the same time, some of the theoretical formulations of these speculative writers were reciprocally applied within the realm of thoroughbass pedagogy.

1. While I will henceforth refer to the keyboard in discussing thoroughbass pedagogy, it should be remembered that it was also possible to realize chords on a strummed instrument such as a guitar or theorbo in some contexts.

2. In a recent article, I have traced in some detail the history of the complex interrelationship between thoroughbass and compositional pedagogies. See Thomas Christensen, “*Fundamenta Partiturae*: Thoroughbass and Foundations of Eighteenth-Century Composition Pedagogy”, in: Thomas F. Kelly & Sean Gallagher (eds.), *The Century of Bach and Mozart: Perspectives on Historiography, Composition, Theory and Practice*, Cambridge Mass. 2008, pp. 17–40.

In the following essay, I want to explore this mutually symbiotic relation between through-bass practice and speculative music theory.³ We will see that one major figure will loom large throughout this story: the French composer and music theorist, Jean-Philippe Rameau (1683–1764). This should not be surprising, since Rameau was without question the most important innovator in the development of modern harmonic theory. What is perhaps less well known, though, is the importance thoroughbass practice played as a catalyst to his radical theorization of tonal practice. That is the story I wish to tell in this essay, a story entailing four differing chapters of tonal music theory.

1.

CHORDAL IDENTITY

One of the most salient features of thoroughbass is that it asks us to think of music in terms of a series of successive chords. These chords are encoded in a notation of Arabic numerals (or “signatures”) that indicate their interval structure above a continuo bass line, usually disregarding octave compounding and doublings. Through the medium of the thoroughbass, composers and performers alike were accustomed to hear most music as a series of these chords sutured through appropriate voice leading.

Of course there were a wide variety of chords to learn for any student, providing a serious pedagogical challenge for teachers and performers alike. A continuo player was faced with a potential blizzard of differing figures in reading a continuo-bass line. To teach these, teachers would collect these many signatures into a comprehensive listing or “table”. In Example 1, we see one such table of signatures, this one from Johann Mattheson’s important treatise on thoroughbass from 1735, *Kleine General-Bass Schule*.⁴ The signatures are ordered — as was typical of the day — based on ascending inter-

3. I have elsewhere explored the epistemological distinctions between “practical” and “speculative” modes of music theorizing. See Thomas Christensen, “Genres of Music Theory”, in: *Towards Tonality: Aspects of Baroque Music Theory*, Leuven 2007, pp. 9–39.

4. Johann Mattheson, *Kleine General-Bass Schule*, Hamburg, 1735.

val content: all chords containing an interval of a second (whether major or minor) were listed first, those containing a third followed, those with a fourth after that, and so on.

Signaturen = Tabelle.

	Secunden.					Terzen.					Quarten.						
Alle Signaturen des General-Basses	b2	2	2	3	b	#	4	4	4	4	4	4	4	4	4	4	4
Die dazu gehörige Füll-Stimmen.	4	4	4	4	4	4	6	6	6	6	6	6	8	8	8	8	8

Quinten.					Sexten.				
5	5	5	5	5	6	6	6	6	6
3	3	3	3	3	8	8	8	8	8

Septimen.									
7	7	7	7	7	7	7	7	7	7
4	4	4	4	4	4	4	4	4	4

Octaven.					Nonen.				
8	8	8	8	8	9	9	9	9	9
5	5	5	5	5	3	3	3	3	3

Example 1. A "Signature Table" from Johann Mattheson, *Kleine General-Bass Schule, Hamburg 1735*, p. 136.

One can imagine the paralysis which might beset a young student faced with this abundance of chordal figures. Of the 70 figures itemized in Mattheson's table (and the number could be more or less, depending on the treatise one consulted), the student would theoretically have to learn the fingering of each and every chord above potentially any scale degree in any key. This is not even to worry about proper voice-leading between the chords, let alone any stylistically-appropriate embellishment or diminution. Clearly some means of pedagogical simplification was called for.

The first step came when a few thoroughbass teachers realized that many of these chords could be learned and played as variants of one

another. The right hand of a keyboardist could grip a single “perfect” harmony (that is, a major or minor triad) against which the left hand (bass note) might move, producing irregular “positions” of the triad, or a variety of non-triadic harmonies. The French theorist and composer Michel de St. Lambert explained this simple trick as follows in his treatise of 1707:

Those who are learning Accompaniment usually have more difficulty understanding and remembering by heart figured chords than [they do] perfect chords. But it is easy to make this less difficult, by pointing out that when a [bass] note has several figures that assign to it an unusual chord — this chord (though unusual for that particular bass note) is often the perfect chord of another [bass] note. When an UT, for example, is figured with a 6, the chord denoted by 6 on UT is the perfect chord on LA; if it is figured with four and six 6/4, this is the perfect chord on FA; if it is figured with 7, or with 7/5, or with 7/5/3, this is the perfect chord on MI, etc. In order, therefore to give the reader all possible assistance on the above matter, I am going to teach him how to imagine the majority of dissonant chords indicated by these figures as perfect chords.⁵

From this perspective, then, it was easy to think of both 6/3 and 6/4 chords as derivative of the perfect triad. We must be clear, though, and not forget that St. Lambert did not speak of these derivative chords as “inversions” let alone “equivalents”. Given the 17th-century theoretical perspective within which he was writing, any such notion of “inversional equivalence” would have been inconceivable. After all, the crucial elements in defining a signature were the kinds of intervals one found above a given bass note, not the pitch-class content of the collections. It would have been nonsensical in St. Lambert’s mind to think of a chord containing two imperfect consonances (such as a 6/3) to be considered equivalent to a chord with a perfect and imperfect consonance (5/3), let alone a chord consisting of a dissonance and an imperfect consonance (6/4).

Clearly, St. Lambert’s was only a clumsy but useful rule of thumb for helping the student to realize some figures. But it is also clear

5. Michel de Saint-Lambert, *Traité de l'accompagnement du clavecin*, Paris 1707; trans. John S. Powell, *A New Treatise on Accompaniment*, Bloomington 1991, p. 23.

that something like this rule of thumb led Rameau to formulate his famous principle of inversional identity in 1722. We know from Rameau's own testimony that it was precisely the practical problem of signature realization in the context of the thoroughbass that led him to develop — and formalize theoretically — his notion of chordal inversion.⁶ The key insight Rameau brought to St. Lambert's short cut was that of a *son fondamentale* — a fundamental sound that could also be understood as the generative root of the harmony. (Here Rameau was relying upon a speculative tradition of interval generation upon the monochord — a tradition that would have been foreign to St. Lambert's practical outlook.)⁷ It was this generative root that would essentially define a chord, so that no matter which note of the chord appeared in the bass, its fundamental sound remained unchanged. Most significantly, though, the *son fondamentale* may be transposed by an octave to any inner voice and still retain its name and function as the foundation and generator of harmony. This is because of the unique quality of the octave, whose notes retain their identity no matter in what register.⁸

Thus, a C Major ("perfect") triad on C had the same generative root as did the 6/3 chord on E, and a 6/4 chord on G. More audaciously, Rameau made the same argument for seventh chords. Thus a 6/5/3 chord was seen as the first inversion of a root-position seventh chord, 6/4/3 the second inversion, and 6/4/2 the third inversion,

6. Rameau first worked out the notion of inversional equivalence in his *Traité de l'harmonie* of 1722. But we know through a study of his early manuscripts that he had worked out an informal notion of the theory much earlier. See Thomas Christensen, *Rameau and Musical Thought in the Enlightenment*, Cambridge 1994, pp. 51–61. The *Traité de l'harmonie*, it should be noted, consists of four books; the first two constitute the theoretical explanation and illustration of the theory of chordal generation and the fundamental bass, respectively, while books 3 and 4 deal with the application of this theory to the disciplines of composition and accompaniment, respectively.

7. For more on Rameau's development of the *son fondamentale* and its origins in traditional monochord theory, see Christensen, *Rameau and Musical Thought*, pp. 90 ff.

8. "...cette Octave n'y a d'autres proprieté que celles qui luy sont communiquées par le Son fondamental dont elle est engendrée, ou pour mieux dire encore, que c'est toujours le même Son qui se transpose dans son Octave ou dans sa replique, ou encore qui se multiplie, si l'on veut, pour déterminer de tous côtés des intervalles particuliers à chaque Son qu'il a engendré, sans alterer néanmoins les proprieté qui sont tombées en partage à ces Sons engendrez dans la premiere comparaison qui a dû en être faite d'abord avec ce Son fundamental." (*Traité de l'harmonie*, p. 8).

all because they possessed the same generative fundamental. Even chords of the 9th or 11th were seen as seventh chords at heart, with bass notes “supposed” below the seventh chord. (So, for example, a 9th chord built above C was actually viewed by Rameau as a seventh chord on E, with the C an added note “supposed” below the true root of E.)⁹ We can see in Example 2 a table from the fourth book of Rameau’s *Traité* in which this idea is clearly illustrated. The right hand (*Main droite*) grips a seventh chord on five differing scale degrees, below which the left hand (*Main gauche*) plays six differing notes that produce either chords of inversion, or chords of supposition.¹⁰

Now this principle of chordal inversion is so familiar to most of us today that it is easy to overlook how revolutionary it was for its time, and how it was directly in response to the challenge of thoroughbass pedagogy that it was formulated. Of course Rameau went beyond this to enunciate a more rigorous (if not entirely consistent) theory of chordal identity and generation. (While it would be too digressive to detail this here, we might simply point out that in his earliest formulations, Rameau grounded his theory of harmonic genera-

9. In the same way a chord of the 11th (or a suspended fourth) can be analyzed as a seventh chord, with a supposed root placed a fifth below the actual root. While Rameau’s theory of supposition came into a great deal of criticism as unintuitive, there is an underlying logic to it when one puts it in the context of the fundamental bass, discussed further on in this essay. In any case, it is clear that the original concept of supposition is congruent with the practical heuristic that guided his initial formulation of chordal inversion: triads and seventh chords can be seen as the foundational structure of most every figured-bass signature, to which certain notes might be added or altered.

10. “Si l’on peut donc ajouter un cinquième Son à l’Accord de la Septième, ce ne peut être qu’au dessous et non au dessus, ou pour lors ce Son ajouté supposera le fondamental qui se trouvera immédiatement au dessus de luy; de sorte que nous ne chercherons point le principe dans l’Octave de ce Son ajouté, mais dans celle du Son fondamental qu’il suppose; et c’est ainsi que nous pourrons rapporter exactement la progression de ces derniers Accords à celle des précédens. L’Accord de la Septième qui s’y trouve toujours depuis le Son fondamental supposé, pourra se renverser de même qu’auparavant; mais le Son ajouté ne pourra jamais changer de lieu, il occupera toujours le grave, pendant que les autres profiteront du renversement, dont ils peuvent participer entr’eux comme étant contenus dans les bornes prescrites par l’Harmonie; ces derniers suivront leur progression naturelle dans le Mode qu’ils représenteront, et le Son ajouté s’évanouïra, en se réunissant avec eux; de sorte qu’il ne peut être regardé que comme surnuméraire, puisque l’Harmonie fondamentale y subsiste toujours sans luy, et que la progression des Accords n’y est point altérée.” (*Traité de l’harmonie*, p. 74).

tion using the venerable tool of the monochord, while later in his life, he invoked a more “natural” origin in the harmonic overtone series — the *corps sonore*.)

E X E M P L E

The musical score consists of five systems, each representing a different bass (Basse). Each system includes a staff for the right hand (Main droite) and a staff for the left hand (Main gauche). The systems are:

- Accords:** Shows the right hand playing chords and the left hand playing a single note (the bass) with figured bass symbols (7, 7, 7, 7, 7).
- Première Basse:** Shows the right hand playing chords and the left hand playing a single note (the bass) with figured bass symbols (6-5, 6-5, 6-5, 6-5, 6-5).
- Deuxième Basse:** Shows the right hand playing chords and the left hand playing a single note (the bass) with figured bass symbols (6, 6, 6, 6, 6).
- Troisième Basse:** Shows the right hand playing chords and the left hand playing a single note (the bass) with figured bass symbols (2, 2, 2, 4X, 2).
- Cinquième Basse:** Shows the right hand playing chords and the left hand playing a single note (the bass) with figured bass symbols (9-4, 9-4, 7X, 9-4).

Example 2. Derivation of various chords of inversion and “supposition” from 5 differing seventh chords. Jean-Philippe Rameau, *Traité de l’harmonie*, Paris 1722, p. 379.

Now this principle of chordal inversion is so familiar to most of us today that it is easy to overlook how revolutionary it was for its time, and how it was directly in response to the challenge of thoroughbass pedagogy that it was formulated. Of course Rameau went beyond this to enunciate a more rigorous (if not entirely consistent) theory of chordal identity and generation. (While it would be too digressive to detail this here, we might simply point out that in his earliest formulations, Rameau grounded his theory of harmonic generation using the venerable tool of the monochord, while later in his life, he invoked a more “natural” origin in the harmonic overtone series — the *corps sonore*.)

But no matter how grounded, the pedagogical value of this theory was clear. Not only would the notion of inversional derivation help a student learn to realize a signature quickly on the keyboard, it could also help in the voice leading. Consider this example: By traditional contrapuntal theory, a perfect fourth above the bass was an undisputed dissonance needing to be prepared and resolved downward by step. Yet this was not the normal practice for the 6/4/3 chord, where the fourth seemed to behave like a consonance. (What was worse, in this same chord, it was the consonant third that usually “resolved” downward by step.) With the theory of the fundamental bass, this paradox could be easily explained. For it turns out that this chord is but a second inversion of the dominant seventh chord, and the “third” actually represents the seventh that needs to resolve (while the “fourth” doubles the fundamental sound of the chord, and thus need not resolve). By knowing which note of a chord was derived from the essential dissonance of the seventh, the student would be ready to “resolve” that note correctly no matter its position above the continuo bass.

It is not surprising that Rameau’s theory of chordal inversion proved so popular to pedagogues; it proved to be an eminently practical heuristic for realizing the thoroughbass. Johann David Heinichen recognized immediately its value when he was in the midst of publishing his mammoth *Der Generalbass in der Composition* of 1728, and he hastily emended his text by incorporating notions of chordal inversion (*verwechseln* or *verkehren*).¹¹ Consider the table

11. See Joel Lester, *Compositional Theory in the Eighteenth Century*, Cambridge 1992, pp. 55–56.

reproduced in Example 3, from what is arguably the most important and widely-consulted manual of the thoroughbass published in Germany in the 18th century, David Kellner's *Treulicher Unterricht im General-Bass*.¹² We can see in Kellner's table that four varieties of seventh chord are all laid out in inversionsal rotations. (Kellner — just as with Heinichen — says nothing about the roots or generative fundamental of these chords, incidentally, suggesting how easy it was to disentangle this concept from that of chordal inversion.)

92 C A P I T U L VII:

7ma mit der grossen Terg. 7ma mit der klei- 7ma mit der fal- 7ma dimi-
 nen Terg. schen Quinc. nara.

Dieselbe fallen jede in dreyen Umwendungen also aus:

Die vieretley Eäge der Septimen.		Die drey Umwendungen.			
* 7	7b	6 4 3	6 4 2	6 4 2	6 4 2
* 7b	6	6 4 1	6 4 2	6 4 2	6 4 2
7	6	6 4 1	6 4 2	6b 4 2	6b 4 2
7b	6	6 4 1	6 4 2	6b 4 2	6b 4 2
7ma dimi- nara.	7b	6 4 1	6 4 2	6b 4 2	2ds super. E. 2.

Example 3. *Inversions of Seventh chords from David Kellner, Treulicher Unterricht im General-Bass, Hamburg 1732, p. 92.*

12. David Kellner, *Treulicher Unterricht im General-Bass*, Hamburg 1732.

So far we have only spoken of chords derived from inversions of the triad or seventh chord (and incidentally of the 9th or 11th). But what of the many other dozens of chords in Mattheson's signature table given in Example 1? Most of these other chords, it will be quickly realized, are ones whose characteristic attributes stem from the inclusion of non-harmonic tones (products of suspension, appoggiatura, pedal point, or anticipation). In fact, though, each of these could be accommodated within Rameau's system simply by analyzing them as alterations or deflections of the simple triad or seventh chord (and their various inversions). In this way, the basic claim of Rameau—that there are two fundamental chord types in all music, one the consonant triad, and the other the dissonant seventh—remains valid. Some version of this “two chord” thesis was adopted by countless thoroughbass pedagogues in the later 18th century. I will let Johann Philipp Kirnberger stand as representative of this perspective, although any number of other figured-bass teachers might equally well have been chosen.

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§. 171.

Consonirende $\frac{3}{4}$ Accord.

Beym consonirenden $\frac{3}{4}$ Accorde, können eben so wohl, wie beim Dreiklang und Sexten: Accord, eine, zwei und drei zufällige Dissonanzen vorgehalten werden, die nach ihnen stehende consonirende Töne, in welchen die Dissonanzen sich auflösen, zeigen auch, was für Töne denen noch fehlenden Consonanzen zukommen müssen, die man sogleich bei denen zufällig dissonirenden Intervallen anzuschlagen hat, als:

6 —	7 6	6 —	9 8	mit einer zufälligen Dissonanz
5 4	4 —	3 4	6 —	
8	8	8	4 —	

mit 2 Dissonanzen.

mit 3 Dissonanzen.

*	7 6	*	7 6	9 8	*	9 8	*	9 8
7 6	7 6	7 6	7 6	7 6	7 6	7 6	7 6	7 6
5 4	3 4	5 4	4 —	5 4	5 4	3 4	3 4	3 4
8	8	8	8	8	8	o	o	o

Die o bedeutet hier, daß man nichts mehr zu suchen, sondern nur die angezeigten Intervalle zu nehmen habe.

Example 4. Dissonant inflections of a 6/4 chord from Johann Philipp Kirnberger, *Grundsätze des Generalbasses*, Berlin, 1781, p. 70.

Although he did not credit Rameau with this insight (and indeed, he was publically a resolute critic of the Frenchman's ideas), Kirnberger was actually one of the most faithful advocates of Rameau's ideas in the later 18th century, or at least of his practical music theory. In Example 4, from Kirnberger's *Grundsätze des Generalbasses* of 1781, we can see how this idea works in the several examples given to illustrate a 6/4 chord elaborated by a number of "accidental" (*zufällige*) dissonances creating various kinds of suspensions and appoggiaturas. Other examples from the same chapter show similar accidental dissonances applied to 5/3 and 6/3 triads. The point being that the student learns that virtually all figures in the thoroughbass may be derived through *some* kind of manipulation of a triad or seventh chord, be it an inversion or some alteration of its constituent tones.

"New-fashioned Table of Signatures" (*Neumodisches Signatur-Register*)

9 9 9 9	9 9 9 9	9 9 9	9 9
4 5 6 7 8	5 6 7 8	6 7 8	7 8
3 4 5 6 7	3 4 5 6	3 4 5	3 4

4 5 6 7 8	5 6 7 8	6 7 8	7 8
3 4 5 6 7	3 4 5 6	3 4 5	3 4
2 2 2 2 2	2 2 2 2	2 2 2	2 2

5 6 7 8	6 7 8	7 8	8
4 5 6 7	4 5 6	4 5	4
3 3 3 3	3 3 3	3 3	3

6 7 8	7 8 8
5 6 7	5 5 6
4 4 4	4 4 4

7 8 8
6 6 7
5 5 5

Example 5. The "New-fashioned Table of Signatures" from Christoph Gottlieb Schröter, *Deutliche Anweisung zum General-Bass, Halberstadt 1772*; cited in F. T. Arnold, *The Art of Accompaniment from a Thoroughbass as practised in the XVIIth and XVIIIth Centuries, Oxford 1931 (reprint New York 1965)*, p. 305.

The understanding that all harmonies could be traced back to either a triad or the seventh chord finally inspired one German thoroughbass pedagogue, Christoph Gottlieb Schröter, to apply permutation theory when calculating and ordering his figured-bass signatures. In his “New-fashioned Table of Signatures” (*Neumodisches Signatur-Register*), Schröter shows how it is possible to rotate successively the top three voices in a four-voiced structure and come up with every possible four-note combination in a diatonic context (even if some of those combinations had less than practical value). While strictly theoretical in conception, Schröter’s table takes another step in using music theory to rationalize and coordinate the pedagogy of thoroughbass.

2.

CADENTIAL MOTION, THE FUNDAMENTAL BASS,
AND THE RULE OF THE OCTAVE

The examples above have dealt mainly with the understanding of chordal origins and identity as encoded in figured-bass signatures. Playing the through bass, however, also entails connecting those chords. To this end, thoroughbass manuals typically would provide several paradigmatic chord progressions for the student to practice and memorize, usually with examples of correct voice-leading. In this way, the student would begin to learn the vernacular syntax of tonal music. But the question of harmonic succession naturally raises deeper theoretical questions that attracted the attention of musicians such as Rameau. The famous solution Rameau formulated to answer this problem — the *basse fondamentale*—can also be seen as originating with the practice of the thoroughbass.

While the details of Rameau’s theory of the fundamental bass can become complex and vexing in their inconsistencies, his basic argument can be summarized roughly as follows: All harmony in music can be reduced to two basic categories of chords, consonant chords originating in the harmonic triad, and dissonant chords originating in the seventh chord. Each of these chords is generated from a common fundamental chord root (*son fondamentale*), and this chord root remains the same regardless of the chord’s inversion (as

discussed above). Tonal motion is determined by the succession of these chord roots or *sons fondamentaux* and may be displayed visually in the *basse fondamentale* as a fictive bass line below the *basse continue*. The harmonies of the thoroughbass were thus shown to have been generated and controlled not by the bass voice, rather, by the fundamental bass. And the primary motion of the fundamental bass consists of precisely those intervals by which the harmonic triad was composed: perfect fifths, consonant thirds, and their inversions (fourths and sixths). Rameau would refer to such paradigmatic motion as the *basse fondamentale* (but also variously as a *progression fondamentale*, *succession fondamentale*, *route fondamentale* or *marche fondamentale*). Thus the principal of chordal generation is also seen to be the principal of harmonic succession. On this basis the entire edifice of musical composition may be constructed, one that has guided musicians without their even being aware of it:

... cette basse fondamentale, l'unique Boussole de l'Oreille, ce guide invisible du Musicien, qui l'a toujours conduit dans toutes ses productions, sans qu'il s'en soit encore aperçû. ... Le grand noeud de la Composition, soit pour l'Harmonie, soit pour la Melodie, consiste principalement et sur tout pour le present, dans la Basse, que nous appellons Fondamentale, et qui doit proceder en ce cas, par des Intervalles consonans, qui sont ceux de la Tierce, de la Quarte, de la Quinte, et de la Sixte (*Génération harmonique*, Paris 1737, iijr, 185).

The value of the fundamental bass in Rameau's theory was both descriptive and prescriptive; it was a means of analyzing any harmonic progression and showing how it could be explained as obeying a coherent set of harmonic laws drawn from a single principle, an explanation that was in accord with the Enlightenment predilection for empirical analysis and synthesis in the sciences. At the same time, the fundamental bass offered a unique pedagogical tool for instructing beginning students in composition and accompaniment, as was made clear in the preface to a manuscript written by Rameau in the mid 1740s with the title *L'art de la basse fondamentale*:

Après avoir déclaré ma decouverte du principe de l'harmonie et de toutes nos facultés en musique dans un seul son, après en avoir frayé les routes dans

ce que j'appelle la basse fondle; apres en avoir exposé le rapport avec une infinité d'experiences, Traité de l'harmonie, nouveau sisteme, generation harmonique ... j'ay enfin entrepris d'en tirer une methode pour la composition et l'accompagnement sous le titre de l'art de la Basse Fondle.¹³

The major point I wish to emphasize here, however, is that the fundamental bass of Rameau was conceived through the continuo bass line, and indeed, it was written to look precisely like it was a figured bass: a linear progression of figured bass notes placed under the music that controls (here in an abstract, generative sense) the succession of acoustical harmonies heard above it.

L I V R E S E C O N D . 57

E X E M P L E S .

The image displays two columns of musical notation, each representing a different mode. The left column is for the major mode, and the right column is for the minor mode. Each column contains five staves of music, with a figured bass line at the bottom. The figures are: 7, 6, 5, 4, 3, 2, 1. The chords are labeled as Quinte, Tierce majeure, Octave, Octave, and Note tonique. The right column has similar figures: 7, 6, 5, 4, 3, 2, 1, with chords labeled as Diff. min., Tierce mineure, Octave, Octave, and Note tonique. The bottom of each column is labeled 'Basse fondamentale' and 'Cadence parfaite dans le Mode majeur/minneur'.

Example 6. A "Perfect cadence" in major and minor modes from Jean-Philippe Rameau, *Traité de l'harmonie*, Paris 1722, p. 57.

13. F-Pi, ms 2474, fol. 1r; later heavily revised and published as Pietro Gianotti, *Le guide du compositeur*, Paris 1757. For information on this manuscript and its relation to Gianotti's gloss, see Christensen, *Rameau and Musical Thought*, pp. 309 ff.

Now let us look at a few details of the fundamental bass and see specific evidence of its filiations with the thoroughbass. In Book 2 of his *Traité*, Rameau deals exclusively with the question of chordal succession. (The first chapter of Book 2 is in fact entitled *Du son fondamental de l'harmonie, & de sa progression*.) It is not surprising that Rameau turns his attention first to the quintessential paradigm of harmonic motion, the perfect cadence. After all, this is one of the very first elementary progressions that a student is usually taught in almost every thoroughbass manual.

Rameau begins where he left off in Book 1, by noting that each of the chords in a perfect cadence (*cadence parfaite*) can be generated from their own *son fondamental*. He models the succession of these chord roots underneath the cadence (in both major and minor modes) and designates this succession — as we have seen — the *basse fondamentale*, or the fundamental bass.

Rameau then observes that the interval connecting these chord roots is a perfect fifth, which was also the primary structural interval by which the perfect triad (major and minor) was built. Through analysis of additional cadential models such as the “irregular” (plagal) cadence, as well as paradigmatic progressions such as the circle of fifths, Rameau concluded that fundamental bass motion of the fifth was the most natural of any progression. Less commonly, chords might connect by major or minor thirds, and very occasionally by ascending seconds.¹⁴ But nature seemed to grant to the fifth priority of root motion in most tonal music. We can see how the priority of fifth motion works by looking at Rameau’s analysis of probably the most ubiquitous chord progression found in just about every thoroughbass manual in the 18th century, the so-called *règle de l’octave*, or Rule of the Octave.

Now the Rule of the Octave was the standard scale harmonization students would learn to play on the keyboard (although actually, it originated in manuals of strummed instruments such as the five-

14. This last observation led Rameau to the startling conclusion that the same principle by which chords were generated out of fifths and thirds was the same principle that governed the succession of these chords. This remarkable synthesis in which both the construction as well as connection of chords in tonal music could be generated by the same principle became one of the bedrocks of Rameau’s musical epistemology.

course guitar or theorbo — both common instruments in early continuo bands).¹⁵ One learned the “Rule” not only as a guide for realizing an unfigured bass, but also to inculcate a feel of tonal progression by which one could improvise (or “modulate”) within a given key. It is not surprising that we find the rule as a starting point in many of the *partimenti* exercises discussed elsewhere in this volume.



Example 7. “Rule of the Octave” from François Campion, *Traité d’accompagnement et de composition, selon la règle des octaves de musique*, Paris 1716, p. 44.

When Rameau wrote his *Traité* in 1722, the *Règle de l’octave* was already well established in France as a pedagogical model thanks to the advocacy of François Campion.¹⁶ It was also implicitly, a paradigm of a “mode” for these students, in that it provided a normative harmonization of chords one would play above each scale degree of a given mode. If Rameau’s theory of the fundamental bass had any legitimacy as both a theoretical model of mode, as well as a practical tool for the pedagogy of the thoroughbass, he had to show how the Rule of the Octave could be subsumed within the strictures of the fundamental bass. And this meant showing how the root of each chord in the rule largely moved by fifth motion. Example 8 shows how Rameau accomplished this in Book 4 of his *Traité*.

15. I have written at greater length on the history and theory of the Rule of the Octave. See Thomas Christensen, “The *règle de l’octave* in thoroughbass theory and practice,” in: *Acta musicologica* 64/2 (1992), pp. 91–117.

16. François Campion, *Traité d’Accompagnement et de composition selon la règle des octaves de musique*, Paris 1716.

382 TRAITÉ DEL'HARMONIE,

Exemple des Tons & des Modes, avec tous les Accords qui doivent se faire sur chaque Note d'un Ton dans une Progression diatonique de la Basse, tant en montant qu'en descendant d'une Octave.

Baſſe-Continue.
 Note tonique — Note — Median — 4me. — Domi — 4me — Note
 te. — Note — nante. — Note — sensible
 Ton majeur d'Ut.
 6 6 1 6 1 7 2

BASSE-FONDAIMENTALE,

6me. — 4me. — 6 6 1 6 6 4 7
 Note, — Note,
 7 7 7 7 7 4 7

Example 8. "Rule of the Octave" analyzed with its fundamental bass from Jean-Philippe Rameau, *Traité de l'harmonie*, Paris 1722, p. 382.

The top three staves of this example show the three typical hand positions that are often illustrated in thoroughbass manuals, while the fourth staff in the bass clef shows the figures typically given the “rule”. (It essentially follows Champion’s harmonization given in Example 6, with two exceptions; for some reason, Rameau prolongs the first cadence in m. 7 by moving to a root-position dominant in m. 8, and he extends the final cadence at m. 17 with a flourish through an elaborated repetition of the authentic cadence.) The bottom staff indicates the fundamental bass analysis of this progression. We see that by and large, each chord was indeed connected by a fifth in the fundamental bass (or what is the same thing by inversion, a perfect fourth). A few exceptions are apparent, though. In m. 4, the movement from scale degree four to scale degree five contains an interpolated note in the fundamental bass. This D is “understood” (*sous-entendue*) according to Rameau even if not acoustically present, in order to soften the otherwise ascending second in the fundamental bass (from F to G). A similar interpolated bass is found in m. 17.

While one might object to the interpolated note as empirically unsubstantiated, this does not overshadow the greater point which is that the fundamental bass in this progression does indeed move primarily by fifth motion.¹⁷ Rameau was convinced that by understanding mode as made up of only a few basic chords (built upon scale degrees 1, 5, 4, and 2), and each connected by fifth motion, he had made the understanding and practice of thoroughbass immensely easier. In other words, what value the Rule of the Octave possessed as a tool for learning to play the through bass was due to the *basse fondamentale* from which it was generated. Pedagogically, then, it made much more sense to begin by teaching the student the fundamental bass rather than with the Rule of the Octave. Through the latter way, he could not resist pointing out, the student was bound to learn in theory some 1584 [!] differing chords, given that a new chord would have to be mastered for every scale degree ascending and descending in every mode built upon any of the 12

17. There are also good historical as well as cognitive justifications for Rameau’s employment of an interpolated note in the fundamental bass. See David Cohen, “The “Gift of Nature”: Musical “Instinct” and Musical Cognition in Rameau”, in: Suzannah Clark & Alexander Rehding (eds.), *Music Theory and natural Order*, Cambridge 2001, pp. 68–92.

chromatic steps, and in three or four differing hand positions. Even then, there are exceptions and limitations to the Rule:

Le detail de ces exceptions est prodigieux; la connoissance & la pratique en sont remplies de difficultés presque insurmontables, par la multiplicité des accords, par la variation infinie de leurs Accompagnemens, par la surprise où jettent sans cesse les différentes formes de succession dont chaque accord en particulier est susceptible, & qui sont souvent contraires aux habitudes déjà formées, par la confusion des regles fondamentales avec celles de gout, par le vuide que l'harmonie y souffre le plus souvent, par le peu de ressource que l'oreille y trouve pour se former aux véritables progrès des sons, par l'assujettissement trop servile aux chiffres souvent fautifs, enfin par les fausses applications auxquelles des regles de détail & des exceptions innombrables ne peuvent manquer d'être sujettes.¹⁸

In contrast, the theory of the fundamental bass requires the student to learn only two basic chord structures — the triad and the seventh chord — and where to apply these above a given scale degree.

It ought to be pointed out that another theoretical issue was lurking in the background of this polemic: that of the priority of harmony and melody. This was to become a major issue between Rameau and Rousseau in the 1750s. But already in the 1720s, Rameau was adamant that harmony proceeds melody, the later being necessarily derivative and secondary to harmonic forces. It was not just a question of pedagogical efficacy, then. If Rameau wanted to maintain the priority of harmony, he had to show how the Rule of the Octave (which offers a harmonization of the most basic and primitive melody of all, the scale) was itself subordinate to — and generated from — the fundamental bass. It is no surprise, then, that Rameau would return again and again to this question in his subsequent theoretical writings.

The nagging problem for Rameau was not so much the irritating interpolated note he had to insert in Example 8, rather than no

18. "Observations sur la méthode d'accompagnement pour le clavecin qui est en usage, & qu'on appelle Echelle ou Règle de l'Octave", in: *Mercur de France* (February 1730), pp. 253–54. This quotation, incidentally, originates in a polemic Rameau had with a rival theorist and composer named Michel Pignolet de Montéclair, who took the position of advocate of the Rule of the Octave. I have discussed their quarrel in *Rameau and Musical Thought*, pp. 56–58.

harmonization seemed possible of the scale that strictly followed motion by the perfect fifth in the fundamental bass. (The nub always turned out to be between scale-degrees 6 and 7.) In his subsequent theoretical publications — the *Génération harmonique* of 1737 and the *Démonstration du principe de l'harmonie* of 1750 — he tackled anew this problem, coming up with a myriad of clever attempts to resolve the problem, although never to his satisfaction. (For one example, see below Example 9 and the attendant discussion.) Even more vexing turned out to be the harmonization of the minor scale, which offered other — and even more intractable — difficulties.¹⁹ Still, his efforts were not all in vain. For in the course of closely analyzing the succession of harmonies that normally accompany the *Règle*, Rameau attained a number of sensitive insights in questions of harmonic *liaison* and mode, insights that would bear additional theoretical fruit. Perhaps the most important of these was that of the subdominant function.

3.

HARMONIC FUNCTIONALITY

We have noted several times that Rameau believed tonal music to be formed by only two basic constructs: the consonant triad and the dissonant seventh. Of course there were varieties of each of these constructs (minor and major for triads, and a larger number of variations for seventh chords). Still, at the most basic ontological level, tonal music could be reduced to just two families of chord, with the major triad and the “dominant seventh” serving as paradigmatic representatives of each.

A different question arose, however, when Rameau turned his attention to the problem of mode. In order to generate the mode as we have seen in the “Rule of the Octave”, Rameau found it necessary to introduce harmonies on a number of differing scale degrees, not

19. For a discussion — and illustrations — of Rameau’s many attempts to harmonize major and minor scales using only fundamental-bass motion of the fifth, see Christensen, *Rameau and Musical Thought*, pp. 193–99.

to mention the use of an interpolated fundamental bass, as we have seen in Example 8. After the publication of his *Traité de l'harmonie* in 1722, Rameau clearly was dissatisfied with his analysis of the Rule of the Octave — and implicitly of his definition of mode. For he quickly returned to this question in all of his subsequent major publications.

What had changed in Rameau's thinking was a new priority and emphasis granted to the fourth scale degree, or what he christened as the *sous-dominante*. As the name suggests, the Subdominant was considered to be the reciprocal dominant *downwards* from the tonic. Like the regular dominant, it was a perfect fifth from the tonic and participated in a cadential close on the tonic (in this case, the "irregular" or "imperfect" cadence). And also like the dominant, it too possessed a characteristic dissonance, in this case, the "added sixth." While apparently different from the seventh which would be found above the regular dominant, the added-sixth of the subdominant chord was actually generated in a similar fashion. According to Rameau, both chords have the same minor third added to their triads from opposing directions. This can be best understood through an illustration. In Example 9, we see how the F above the G triad is mirrored by the D placed *below* the F triad. In practice, though, the D normally sounds above the F triad. Both chords constitute the upper and lower dominants of C major, respectively, and both dissonances "resolve" by opposite directions to the same major third of the tonic triad. There is thus a fully symmetrical relation between the two chords that suggests the subdominant to have an ontological status on par with that of the dominant seventh.



Example 9. Rameau's Analysis of the Reciprocal structure of the Dominant Seventh and Subdominant Chord with an Added Sixth. (Cited in Christensen, Rameau and Musical Thought, p. 184, ex. 7.6)

I want to emphasize that this was not merely some abstract deduction Rameau drew as a consequence of his theoretical premises. On the contrary, there was a long tradition in French thoroughbass

theory for adding a sixth to the triad when ascending a perfect fifth (as in the paradigmatic plagal cadence).²⁰ Likewise, in thoroughbass practice, the only other scale degree which might be assigned a perfect triad other than the tonic and the dominant scale degrees was that of the fourth (scale degree).²¹ Still, it is simplistic to say that it was only through astute observation of practice that we find Rameau drawing his theoretical formulations. The relation of theory and practice is much more complex in Rameau's system — as it is for any sophisticated music-theoretical system. We might better say that the relation is a dialectic one in which theory suggests certain formulations that might be tested in musical practice, and conversely, musical practice suggests certain empirical data that demand explanation. The subdominant did not jump out at Rameau simply through its empirical reiteration in musical practice; it was clearly something that had a more speculative origin through his notion of the geometric progression. But if it were not for the empirical confirmation of the subdominant's prevalence in musical practice, Rameau clearly would not have developed this idea further.

Now there is much more one could say about the theoretical issues raised by Rameau's invocation of the subdominant function. (Not the least of which was the seeming contradiction in posed with his earlier theory of two primary harmonies.) But without going into further tedious detail, Rameau more or less settled on his new conviction that there were three primary and independent harmonies in any mode, and the added-sixth on scale degree four was no longer to be seen as but an inversion of a (minor) seventh chord, rather it was to be viewed as a legitimate and self-standing harmony.²² As we

20. Michel de Saint-Lambert, *Nouveau traité de l'accompagnement du clavecin*, Paris 1707; trans. John S. Powell, *A New Treatise on Accompaniment*, Bloomington 1991, p. 106, ex. 127.

21. See Christensen, *Rameau and Musical Thought*, p. 179.

22. Consider these two quotes from Rameau: "Il n'y a que trois Sons fondamentaux, la Tonique, sa Dominante, qui est sa Quinte au-dessus, et sa Soudominante, qui est sa Quinte au-dessous, ou simplement sa Quarte... La seule Note tonique porte l'Accord parfait, ou naturel; on ajoute la Septième à cet Accord pour les Dominantes, et la Sixte majeure pour les Soudominantes" (*Génération harmonique*, Paris 1737, p. 171); "Ces trois notes, la tonique, sa dominante et sa sous-dominante, sont les fondamentales, dont la seule harmonie compose elle de toutes les notes comprises dans l'étendue de l'octave de la tonique" (*Code de musique pratique*, Paris 1760, p. 29).

can see in Example 10, each scale degree of the major scale is harmonized either by a tonic, dominant, or subdominant chord, and all chords are connected by fifth motion. (Of course Rameau finds he can't connect scale degree 6 and 7 directly without creating step-wise motion in the fundamental bass, so he "solves" the problem by returning momentarily to scale-degree 5 before leaping to the leading tone!)

VI.
*Ordre Diatonique des Sons Harmoniques
 dans le Mode majeur.*

la x. note mobile.	{ sol. 24.	la. 27.	si. 30.	ut. 32.	re. 36.	mi. 40.	fa x. 36.	sol. 45.	48.
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Succession fondamentale par Quintes dans un seul Mode.

Example 10. Analysis of the Major Scale from Rameau, *Génération harmonique*, Paris 1737, plate 6.

Still, the fact that Rameau could not satisfactorily harmonize the complete and uninterrupted scale using his three primary functions separated by perfect fifths in no way dissuaded him of the heuristic value of these three chords. For further analysis of musical practice convinced him that the chord of the *sous-dominante* was indeed one member of a triad of scale degrees that assumed functional priority in all tonal music. In all his following publications after the *Génération harmonique*, Rameau would continually uphold the subdominant as one of three fundamental harmonies in any key.

Rameau's theory of the subdominant became one of his most influential ideas, adopted by a number of theorists in Germany (and significantly, without the apparatus of the fundamental bass,

from which it was largely disentangled). Already while Rameau was still very much alive, one theorist across the Rhine — Johann Friederich Daube — got the idea of constructing an entire pedagogy of thoroughbass using only three harmonies after having perused a copy of Rameau's *Démonstration* shortly after it appeared in 1750. In his Germanicized version of Rameau's theory, Daube insisted that there were only three *Haupt-Accorden* in music: the tonic (*Grund Accord*), dominant seventh (*Sten Accord* 7/5/3), and subdominant (*4ten Accord* 6/5/3).²³ All other harmonies (*Neben-Accorden*) were derived by some means (familiar from Kirnberger and Schröter — inversions, suspensions, substitutions, added notes, etc.) from one of these three fundamental chords. Not being constrained by Rameau's desiderata to privilege fifth motion in the fundamental bass, Daube had no trouble at all providing the following luxuriant harmonization of the C major scale using inversions of his three primary chords.

§. 7.

Die musikalische Leiter muß sich auch auf diese drey Haupt-Accorde beziehen, und zwar im Hinauf- und Herabsteigen, als:

Example 11. Harmonization of the Major Scale using Three Primary Chords from Johann Daube, *General-Bass in drey Accorden*, Leipzig 1756, p. 20.

23. Johann Friedrich Daube, *General-Bass in drey Accorden*, Leipzig 1756. Other theorists of the time who accepted Rameau's three-chord system were William Jones, *A Treatise on the Art of Music*, London 1784, and Giordano Riccati, *Saggio sopra le leggi del contrappunto*, Trento 1762. Jones's remarks are typical: "Therefore these three keys [C, G, F] comprehend all the native harmony of the octave; and the three notes C, G, F, are the fundamental notes, because they carry all the degrees of the octave in their accompaniment" (*A Treatise on the Art of Music*, p. 13).

Now Daube himself did not theorize his pedagogy as Rameau had tried to. The three chords were simply a useful heuristic for the student learning keyboard and compositional pedagogy (much as earlier Rameau had invoked the “two-chord” system as such a heuristic). Several later generations of German theorists, however, did provide such a theoretical framework for these three harmonies, including Moritz Hauptmann, Arthur von Oettingen, and above all, Hugo Riemann, whose influential theory of harmonic functionality may be traced back to the pragmatic thoroughbass prescriptions of Rameau and Daube.²⁴

4.

DIMINUTION AND PROLONGATION

One of the requirements of any competent performer of the thoroughbass was the ability to elaborate a given figured bass through stylistically-appropriate ornamentations and figures. This art of elaboration — typically called “diminution” by pedagogues of the time — was considered so fundamental to the practice of the continuo that treatises often contained dozens of pages of sample elaborations for the young student to practice and emulate. Typically, a teacher might begin with a simple bass line — perhaps a single interval, or a scale segment — and then show several dozen ways this bass line might be elaborated extemporaneously by the performer. Example 12 shows such Variation oder Veränderung of an ascending fifth provided by Friederich Niedt in his important manual of thoroughbass, the *Musicalische Handleitung*.

Subsequent examples by Niedt illustrate the elaboration of melodic lines and entire chordal progressions. In the latter case, he takes certain stylized dance genres — such as a sarabande — and subjects

24. For a concise history of functional theory in Germany, see David Bernstein, “Nineteenth-Century Harmonic Theory: The Austro-German Legacy”, in: Thomas Christensen (ed.), *The Cambridge History of Western Music Theory*, Cambridge 2002, pp. 795–800; also Henry Klumpenhouwer’s contribution to the same volume, “Dualist Tonal Space and Transformation in Nineteenth-Century Musical Thought”, pp. 456–76.

them to a variety of diminutions and rhythmic alterations, creating in effect a suite of dance variations.²⁵

§. 10. Ferner ist zu wissen/ daß man also in die Quintam über sich variiren kan.

The image shows a musical score for a single voice in bass clef. The title is '§. 10. Ferner ist zu wissen/ daß man also in die Quintam über sich variiren kan.' The score is divided into two parts: 'schlecht' (measures 1-10) and 'variirt' (measures 11-32). The music consists of a series of eighth-note patterns, each representing a variation of a perfect fifth. The variations are numbered 1 through 32. The first measure is marked 'schlecht' and the second 'variirt'. The score is written on a single staff with a key signature of one flat (B-flat) and a common time signature (C). The notes are primarily eighth notes and quarter notes, with some sixteenth notes in the later variations. The overall structure is a sequence of 32 measures, each containing a variation of a perfect fifth.

Example 12. Diminutions of a Perfect Fifth from Friederich Erhardt Niedt, *Musicalische Handleitung. Part 2. "Handleitung zur Variation, wie man den General-Bass und darüber gesetzte Zahlen variiren, artige Inventiones machen, und aus einem schlechten General-Bass Praeludia, Ciacconen... leichtlich verfertigen können"*, Hamburg 1721; trans. Pamela Poulin & Irmgard C. Taylor, *The Musical Guide*, Oxford 1989, part II, p. 79.

25. On the topic of thoroughbass diminution with examples, see Joel Lester, *Composition Theory in the Eighteenth Century*, Cambridge Mass. 1992, pp. 65–68. I have also written an article on this topic that traces the history of keyboard diminution as far back as the late 15th century: Thomas Christensen, "Fundamenta Partiturae: Thoroughbass and Foundations of Eighteenth-Century Composition Pedagogy", in: Thomas F. Kelly & Sean Gallagher (eds.), *The Century of Bach and Mozart: Perspectives on Historiography, Composition, Theory and Practice*, Cambridge Mass. 2008, pp. 17–40.

The art of diminution was not evenly taught in all thoroughbass treatises. French manuals of the time barely mention the skill, while German writers typically offered extensive discussions of the topic with ample—and often tendentious—illustrations. The treatises of Johann David Heinichen (*Der Generalbass in der Composition*, 1728), Johann Mattheson (*Grosse General-Bass Schule*, 1731), Johann Friedrich Daube (*General-Bass in drey Accorden*, 1756), Carl Philipp Emmanuel Bach (*Versuch über die Wahre Art das Clavier zu Spielen*, 1762), and Michael Johann Wiedeburg (*Der Selbst Informirende Clavierspieler*, 1765–75) all offer copious examples of possible elaborations of continuo bass lines and chord progressions. Italian authors were inconsistent. Some, such as the London based Giorgio Antoniotto (*L'Arte Armonica or A Treatise on the Composition of Musick*, 1760) prescribed extensive exercises of harmonic elaboration for the student, while others such as Francesco Gasparini (*L'armonico pratico al cimbalo*, 1708) had little to say. (However, the practice of *partimenti*²⁶ undoubtedly involved the application of extensive elaborations to the bare figured bass skeleton, so we may assume that this practice was taught through oral instruction even if these instructions were never written down by the Italian maestros.) English authors were likewise inconsistent, although many did fall back into an older (seventeenth-century) tradition of melodic embellishment called “divisions” or “breaking of the ground”.²⁷

While this practice of continuo embellishment in all its various fashions was taught and understood as a purely practical skill, it did have “theoretical” repercussions, albeit from about two centuries later. For the practice of Baroque thoroughbass elaboration became a foundation for the music theory of the 20th-century Austrian music theorist, Heinrich Schenker. Schenker would repeatedly claim that thoroughbass embodied the structural essence of all tonal music. But not just any thoroughbass. For Schenker, it was the treatise penned by Bach’s son, Carl Philip Emanuel, that provided the true light. Bach’s treatise, the *Versuch über die wahre Art das Clavier zu*

26. Robert Gjerdingen, “*Partimenti* Written to Impart a Knowledge of Counterpoint and Composition,” this volume.

27. For a discussion of this tradition, see Albert Cohen, “Performance Theory”, in: Thomas Christensen (ed.), *The Cambridge History of Western Music Theory*, Cambridge 2002, pp. 540–548.

Spielen (1753–62), while never conceived by its author as a “theory” treatise, at least as understood in any 18th-century sense, was seen by Schenker as containing the seeds of the most authentic and far-reaching music theory there was. Significantly, C.P.E. Bach did not accept Rameau’s theory of harmonic generation or inversion. His was largely an empirical description of practice using pure figured-bass notation. Yet in Bach’s exquisitely detailed descriptions and illustrations, Schenker believed, the composer showed the greatest musical sensitivity and insight into issues of voice leading, diminution, and harmonic elaboration, elements that would of course form the essence of his own latter theory of structural hierarchy and tonal prolongation.²⁸ Once again, the thoroughbass provides a catalyst for profound theoretical reflection.

5.

CONCLUSION

I have tried to show in this essay how the thoroughbass in the Baroque era can be credited for stimulating some of the most searching theorizing of harmonic tonality in the 18th century—and beyond. This should really be no surprise, since the thoroughbass provided the universal notation and framework by which 18th-century musicians conceived and practiced their developing harmonic language. As it also provided pedagogical challenges for teaching this harmonic language, it makes sense that several of these thoroughbass instructors would step in and try to help clarify, simplify, and ultimately explain this complex empirical practice using the tools of music theory.

If not all keyboard pedagogues succumbed to this theoretical urge, for intellectually-minded musicians such as Rameau, the desire to

28. Schenker offers an extensive analysis of C.P.E. Bach’s thoroughbass method (and particularly concerning Bach’s portentous observations concerning the genre of the *Freie Fantasie*) in his essay, “The Art of Improvisation”, *The Masterwork in Music, vol. I*; trans. Richard Kramer, Cambridge 1995, esp. pp. 2–13. For more on Schenker and his theory, see William Drabkin, “Heinrich Schenker”, in: Thomas Christensen (ed.), *The Cambridge History of Western Music Theory*, Cambridge 2002, pp. 812–843.

analyze and systematize thoroughbass practice within an overarching theory of harmonic tonality proved to be irresistible. For how could it be otherwise for an art that was widely equated to be commensurate with the skill of a composer?²⁹

The skill of performing the thoroughbass was deemed by many pedagogues in the 18th century to be an indispensable basis for learning composition. In his widely-read treatise from 1700, Friedrich Neidt wrote one of the most famous and repeated encomiums in praise of the *General-Bass*:

Der General-Bass ist das vollkommenste Fundament der Music welcher auf einem Clavier gespielt wird mit beyden Händen dergestalt das die lincke Hand die vorgeschriebene Noten spielet die rechte aber Con- und Dissonantien dazu greiffet damit dieses eine wol klingende Harmonie gebe zur Ehre Gottes und zulässiger Ergötzung des Gemüths.³⁰

Johann Sebastian Bach, it might be noted, quoted Neidt's description in 1738 almost *verbatim* in his own compendium of General-Bass instructions cribbed from Neidt's text:

Der General Bass ist das vollkommste Fundament der Music welcher mit beyden Händen gespielt wird dergestalt das die lincke Hand die vorgeschriebene Noten spielet die rechte aber Con- und Dissonantien darzu greift damit dieses eine wohlklingende Harmonie gebe zur Ehre Gottese und zulässiger Ergötzung des Gemüths und soll wie aller Music, also auch des General Basses Finis und End Ursache anders nicht als nur zu Gottes Ehre und Recreation des Gemüths seyn. Wo dieses nicht in acht genommen wird da ists keine eigentliche Music sondern in Teufflisches Geplerr und Geleyer.³¹

29. A good discussion illustrating the compositional potential of thoroughbass as a frame for a composer in the 18th century can be found in Joel Lester's article, "Thoroughbass as a Path to Composition in the Early Eighteenth Century", in: *Towards Tonality: Aspects of Baroque Music Theory*, Leuven 2007, pp. 145-168.

30. Friedrich Neidt, *Musicalische Handleitung*, Hamburg 1700, Ch. 2.

31. Johann Sebastian Bach, *Vorschriften und Grundsätze zum vierstimmigen spielen des General-Bass oder Accompagnement*, Leipzig 1738; cited in *Bach Dokumente II*, Kassel 1969, #433.

The designation of thoroughbass as the *fundamentum* of musical knowledge became a commonplace one in 18th-century German music theory, with varied rhetoric extolling its virtues not only as the foundation of harmony and thereby essential for the learning of musical composition, but even as a Sacred invention granted to us by God:

... in rechtmässigem Gebrauch/ ist und bleibt der General-Bass ein herrliche Göttliche Invention, eine solche Hauptstimm/ darinn sich all andere Stimmen/ so viel deren immer seyn mögen/ gleichsamb concentriren, und in einen Middle-Punct zusammen ziehen... Mag demnach diese letzt-inventirte Stimm nicht unbillich Basis, compendium, Synopsis, quinta essentia &c. Das ist/ ein fundament oder Grund kurtzer Begriff/ Auszug/ bester Safft und Krafft der gantzen Musicalischen composition gennenet werden ...³²

Was die rechte Anweisung zum General-Basse von Nutzen bringe lehret die Erfahrung: denn es werden erstlich die Discipul zum *Fundament* der ansgewiesen.³³

Das der Bassus Continuuus, oder so genannte General-Bass, nechst der Composition eine von den wichtigsten und fundamentalesten Musicalischen Wissenschaften sey, dessen wird kein Music-Verständiger in Abrede seyn können.³⁴

We observe in these quotations a subtle but critical shift — and conflation — of meaning from *General-Bass* as foundation of harmony to *General-Bass* as *fundament* of composition and ultimately music

32. Philipp Jakob Böhdecker, *Manuductio nova methodico-practica ad bassum generalem*, Stuttgart 1701, p. 13.

33. Andreas Werckmeister, *Harmonologia Musica*, Frankfurt 1702, p. 67. Cf. Werckmeister's comments in his *Die Nothwendigsten Anmerkungen und Regeln wie der Bassus Continuuus oder General-Bass wol könne tractiret werden*, Aschersleben 1698: "... der General-Bass nicht anders als ein liebliches Sausen und Fundament seyn muss, in einem Musicalischen Stücke worauff das ganze Wesen beruhet..." p. 40.

34. Johann David Heinichen, *Neu erfundene und Gründliche Anweisung zu vollkommener Erlernung des General-Basses*, Leipzig 1711, p. 1. Virtually identical statements may be found in Heinichen's *Der Generalbass in der Composition*, Leipzig 1728, p. 1; and also David Kellner, *Treulicher Unterricht im General-Bass*, Hamburg 1732, p. 1; Joseph Friederich Majer, *Neu-eröffneter theoretisch- und practischer Music-Saal*, Nürnberg 1741, p. 62.

in general. In other words, fundamental as an empirical attribute of lowest voice and harmonic substratum gives way to fundamental as an ontological claim of priority and primacy as the foundation of musical composition and knowledge. The skills necessary for playing thoroughbass — how to infer and realize chords instantly above a bass line, and how to connect and embellish those chords in good taste — were exactly those required of a good composer. In short, if one could expertly play the continuo, one could also compose. And conversely, in order to compose well, one would need to understand completely the principles of the thoroughbass.

In his *Traité d'accompagnement pour le théorbe, et le clavessin*, Paris 1690, Denis Delair wrote explicitly that realizing the thoroughbass was as much an art as composition, since the “Principes de composition ... servent de fondement à l'accompagnement.” Andreas Werckmeister, in the preface to his short treatise on accompaniment emphasized the connection between mastering thoroughbass and the skill of composition, insisting that the former was the foundation of the later (a connection also made clear in the subtitle to his treatise):

Es ist auch dieses Wercklein zugleich ein *Compendium* wie man einen *Contrapunctum simplicern componiren* könne, denn wer einen General-Bass *absque vitiis tractiren* will, der muss das *Fundamentum Compositionis* verstehen.³⁵

Rameau, although not using the term *fondament* (which he had of course appropriated for other purposes in his theory) nonetheless held the same view:

Les principes de composition & d'accompagnement sont les mêmes, mais dans un ordre tout-à-fait opposé. Dans la composition, la seule connoissance de la racine donne celle de toutes les branches qu'elle produit: dans l'accompagnement au contraire, toutes les branches se confondent avec leur racine.³⁶

35. Andreas Werckmeister, *Die Nothwendigsten Anmerckungen und Regeln wie der Bassus Continuus oder General-Bass wol könne tractiret werden... Aus dem wahren Fundament der musicalischen Composition denen Anfängern zu besserer Nachricht aufgesetzt und aniezzo mercklich wermehret*, Aschersleben 1698, p. 2.

36. Jean-Philippe Rameau, *Code de musique pratique*, Paris 1760, p. 24.

The equation of composition with thoroughbass in the 18th century was clearly reflected in the titles of many of the most important treatises of the day.³⁷ As late as 1793, theorists such as John Casper Heck wrote that the thoroughbass “may justly be defin’d as a science form’d entirely on the fundamental principles of composition.”³⁸ While Albrechtsberger could write “Der Generalbass ist die Fundamental-Basis der ganzen Musik. Das gründliche Studium desselben unerlässliche Bedingnis für jeden, der sich ernstlich dieses schönen Kunst weihen will.”³⁹

If thoroughbass remained in the estimation of most musicians a lowly, practical art,⁴⁰ there were clearly many others who saw in it something far greater: an art that at its best requires all the skills and imagination of the composer. It is not surprising, then, that many

37. For examples: François Champion, *Traité d’accompagnement et de composition selon la règle des l’octaves de musique*, Paris 1716; Johann David Heinichen, *Der General-Bass in der Composition*, Dresden 1728; Georg Andreas Sorge, *Vorgemach der musikalischen Composition, oder... Anweisung zum General-Bass*, Lobenstein 1745–47; Friedrich Wilhelm Marpurg, *Handbuch bey dem Generalbasse und der Composition*, Berlin 1755–60; Johann Friedrich Daube, *General-Bass in drey Accorden... dass also durch diese neue und leichte Anleitung zugleich auch zur Composition unmittelbar der Weg gebahnet wird*, Leipzig 1756; Charles-François Clement, *Essai sur l’accompagnement du clavecin, ... par les principes les plus clairs et les plus simples de la composition*, Paris 1758; Johann Michael Bach, *Kurze und systematische Anleitung zum General-Bass und der Tonkunst überhaupt*, Kassel 1780; Johann Philipp Kirnberger, *Grundsätze des Generalbasses als erste Linién zur Composition*, Berlin 1781; Edward Miller, *A Treatise on Thoroughbass and Composition*, Dublin 1790.

38. John Casper Heck, *The Art of Playing the Thoroughbass*, London 1793, p. 1.

39. Ignaz von Seyfried (ed.), *Johann Georg Albrechtsberger’s Sämmtliche Schriften über Generalbass, Harmonie-Lehre, und Tonsetzkunst*, Vienna 1826, p. 1.

40. For Mattheson, the thoroughbass was more *Hand-Sachen*, requiring only the keyboardist to play the harmonies designated by the chord signatures, and having a good facility of keyboard skills. But to equate this knowledge with the artistic demands of a composer (which for Mattheson above all required an instinct and understanding for natural melody) was absurd. Explaining this later point in his own manual of *General Bass* with his typical sarcasm, Mattheson said putting thoroughbass as the foundation of musical composition was like putting the cart before the horse: “Hergegen wer seinen Untergebenen sogleich über Hals und Kopf zum General-Bass führen; hernach aber, wenn er, mit saurem Schweiss ein ihm gantz unbekanntes gar nicht angenehmes Exempel, das weder gehauen noch gestochen heisst, gelernet hat, und solches daher dreschen kann, ihm erst von einer Melodie etwas vorsagen, und nach selbiger sich richten heissen vollte, (welches doch unumgänglich geschehen muss) der hätte ja wirklich die Pferde hinten den Wagen gespannt” (*Kleine General-Bass-Schule*, pp. 49–50).

Thoroughbass as music theory

of these same musicians would analyze the thoroughbass using the tools of music theory. For if the thoroughbass was indeed the *fundament* of musical composition, as so many of its champions claimed, then music theory would offer the means by which its mysteries might most clearly be brought to light — and thereby the secrets of musical composition as well.