

Fretboard Harmony for University Study:
Method and Historical Context

by

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A thesis submitted in conformity with the requirements

for the degree of Doctor of Musical Arts

Graduate Department of Music

University of Toronto

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Abstract

Fretboard harmony is essential in any thorough approach to the education of classical guitarists yet no effective method or materials for teaching a course in fretboard harmony is currently available. This dissertation aims to remedy this state of affairs by providing a method book intended for use in an upper-level undergraduate course.

The design of the method book is informed by the study of historical documents and by the examination of recent theory and keyboard harmony texts. In Chapter I, materials from the Renaissance, Baroque and Classical guitar traditions are examined to assess the historical conception and use of the guitar as an harmonic instrument. These include Matteis' *The False Consonances of Music*, Sor's *Méthode pour la guitare* and Horetzky's *Preludes, Cadences and Modulations*. Having established some historical context, the dissertation proceeds in Chapter II to

examine theory and keyboard harmony texts to determine if there is a consensus on the ordering of presentation of concepts. The type of exercises given and their deployment are also assessed.

The fretboard harmony method which emerges from these studies adapts this information to the particular exigencies and constraints of the guitar, resulting in a text which is intended for use in a full-year, upper-level undergraduate course. It comprises Chapter III and consists of a progressive arrangement of over 250 exercises along with written instruction. It begins with fretboard orientation and proceeds through single-note exercises, intervals, triads, chords, chord function and chord progression and modulation. The derivation of barre chords and “common” or “familiar” chords is explicated through a systematic method of chord formulation. Melody harmonization and figured bass realization are employed as pedagogical tools and are objectives in themselves in learning to actualize harmony on the fretboard. The harmonic scope of the method is confined to the vocabulary of the common-practice period. The use of secondary dominants, Augmented and Neapolitan 6th chords are final goals.

Chapter IV is a conclusion of the study with a discussion of potential areas of future research.

Acknowledgements

I wish to thank my dissertation committee, Dr. Ryan McClelland, Dr. Lori-Anne Dolloff, and especially my supervisor, Dr. Cameron Walter, for their generosity, their unwavering support and their extremely valuable guidance through the researching and writing of this dissertation.

I also thank my wife Anne-Marie, my daughter Baie and my parents, James and Laura for their patience and support.

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Introduction

Fretboard harmony is, to this point in time, an insufficiently developed area of the college-level music curriculum but one that is essential in the effort to provide high quality classical guitar education. One of the core issues is the deficiency both of a reasoned methodology and of an effective text with which to address the subject. Despite attempts over the last forty years, no satisfactory reference for the development of a complete and effective fretboard harmony method has emerged.

Like the keyboard, the guitar fretboard can produce harmony and realize theoretical harmonic constructs. The goal of fretboard harmony should be to integrate the guitarist's understanding of harmony with actual instrumental performance and in turn to develop a tactile association between theory and practice. This integration of skills is invaluable in every stage of performance learning, and the capacities it inculcates are critical. This dissertation proffers a fretboard harmony method informed by a review of historical documents related to the subject and by an examination of commonly used music theory texts and keyboard harmony methods.

Without an established cognitive connection between the aural, the written and the physical, autonomic 'finger choreography' becomes the sole tool in performing music effectively. By contrast, with a practical facility in harmony comes more secure memorization, more concrete apperception of interpretive gesture, a wider awareness of fingering options and the beginnings of competency with transcription processes. Knowledge and recognition of left-hand chord forms help to group notes together in packages, an approach which

reflects the cognitive process of "chunking".¹ This chunking, intuition would suggest, creates movement groupings, and among other benefits, assists in the memorization of pieces. An understanding of underlying harmonic structure is essential to the effective interpretation of pieces. Competence in these areas surely leads to more confident performance. LeBlanc's charting of sources of musical performance anxiety acknowledges both *perceived adequacy of preparation* and *memory* as critical factors operating in performance anxiety.² Competent fretboard practice also can provide part of the solution to this problem.

A working knowledge of harmony on the *keyboard* is generally recognized as essential in most curricula. It is part of the core undergraduate curricula at the University of Western Ontario, the University of Toronto, McGill University, the University of British Columbia, the Eastman School of Music, the Juilliard School of Music and presumably at most other institutions in North America. Still, *fretboard* harmony is not yet an integrated part of the classical guitarist's education. For example, the guitar curriculum and materials of The Royal Conservatory of Music (Canada) show little evidence of an attempt to integrate fretboard harmony with the curriculum. An inspection of the RCM guitar curriculum reveals that the elements of fretboard harmony are not meaningfully present. Specifically, there are no exercises for lower position chord-shape memorization and recognition although these chord shapes are

¹ G. A. Miller, "The Magical Number Seven, Plus or Minus Two: Some Limits on our Capacity for Processing Information," *Psychological Review* 63 (1956): 81-97.

² Albert LeBlanc, "A Theory of Performance Anxiety," *Quarterly Journal of Music Teaching and Learning* 5.4 (1994): 60-68.

found scattered liberally through the repertoire even at the junior levels. Aside from the performance of scales in thirds and sixths in the senior intermediate and advanced grades, there is no formal process for learning interval shapes and execution. Scales are prescribed in easily transposable form but transposition is not presented in a deliberate or coherent way. The performance of I – IV – V – I progressions with conventional voice leading, is part of the RCM technical requirements but cadential formulas are not clarified by preparatory exercises nor formally deconstructed to reveal their constituent elements of chord formulation, harmonic progression and transposition.³ No systematic method is given for barre chord usage, no melody harmonization exercises are required and no figured bass realization is expected. The situation is no more developed in the Trinity College (UK) materials and curriculum.⁴ This does not imply an institutional disregard for the importance of fretboard harmony but rather is likely a reflection of the absence of coherent systems and methods to facilitate its integration into the curriculum, or perhaps of even more mundane factors such as budget restraints.

The typical pre-college classical guitarist comes to the instrument from a background in popular guitar, a background which places limited emphasis on literacy but encourages improvisation, playing by ear and free experimentation within defined technical boundaries. When the student moves into classical guitar study, usually with the objective of gaining university admission, the improvisation, experimentation and freer playing are abandoned in favour of the necessary

³ Royal Conservatory of Music, *RCM Guitar Syllabus* (Oakville: Frederick Harris, 2004).

⁴ *Trinity Guildhall Guitar Syllabus*, ed. Benjamin Norbury (London: Trinity College, 2006).

development of literacy, that is, of fluent reading and the understanding of theoretical underpinnings of the repertoire. It *is* necessary, not only to meet college audition requirements but also in order to understand the historical core of repertoire for the instrument. Unfortunately, this focus on literacy is inevitably associated with a dependence on the score and a lack of experimentation. All of these seem to be normative elements in the pre-college pedagogy and habits tend to persist into post-secondary education. As a result, the more a classical guitarist is educated, the less adept a fretboard practitioner s/he becomes. Improvisation becomes foreign and most develop only the most tenuous relationship between the theoretical understanding of harmony and its manifestation on the fretboard. An effective fretboard harmony method is needed to mitigate this situation and help classical guitarists become more intuitive practitioners.

Though fretboard harmony needs to be included in any progressive undergraduate curriculum, it does not necessarily follow that guitarists should be exempt from the study of *keyboard* harmony. In the keyboard harmony manual *Tonal Harmony for the Keyboard*, authors Gary Wittlich and Deborah Martin argue for the importance of keyboard harmony in undergraduate curricula, describing it as an effective method of reinforcing the classroom understanding of music theory, and of rescuing from abstraction the harmonic patterns, chord relationships and voice leading that make up the core of the material.⁵ The place of fretboard harmony is not only to further reinforce these principles but to do so on the native instrument, taking advantage of the guitar's capabilities as an instrument of harmony and providing an

⁵ Gary Wittlich and Deborah Martin, *Tonal Harmony for the Keyboard* (New York: Schirmer, 1989).

essential foundation for guitarists, who would otherwise be playing an instrument capable of harmony without a formal sense of how harmony actually unfolds upon it, They would, in a sense, be engaged in the ostensibly professional use of a tool without a clear conception of the essentials of its use.

There are currently a handful of texts dealing with music theory and harmony as applied to the fretboard. Some, like *Fingerboard Theory for Guitar* are designed for the popular musician.⁶ Others, such as *The Guitarist's Harmony* are oriented toward traditional harmony but have an unbalanced emphasis on pure theoretical exposition with limited application and realization on the fretboard. Gavall's *Learning Music Through Guitar*, is extensive, thorough and detailed but is not sufficiently systematic in its approach to rudiments of chord formulation, is almost entirely devoid of musical examples from the guitar repertoire, and does not emphasize experimentation.⁷ There are still others, such as *Four-Part Harmony at the Classical Guitar*, that are concerned with the limiting and marginally practical transfer of chorale-style harmonization onto the guitar.⁸ There are currently no existing clear models for the development of a fretboard harmony method that provide materials to orient users to the geography of the fretboard and that treat common-practice harmony in an ordered, effective way, with a logical, vertically oriented presentation of concepts. This absence of models also leaves undetermined the volume of exercises needed to establish playing fluency. Ultimately, there are no methods currently available that would be of direct utility in the teaching of harmony to upper-level undergraduate guitarists.

⁶ Mike Christiansen, *Fingerboard Theory for Guitar: A Music Theory Text for Guitarists* (Pacific, MO: Mel Bay, 2005).

⁷ John Gavall, *Learning Music Through Guitar* (London: Mills Music, 1968).

Basil Cimino and Robert Lilienfeld, *The Guitarist's Harmony* (New York: Franco Colombo, 1965).

⁸ Paul Dell Aquila, "Four-Part Harmony at the Classical Guitar," diss., University of Louisville, 2003.

In Chapter I of this dissertation, relevant historical documents will be assessed to determine the nature of the conception and use of the ancestral guitar as an harmonic instrument. These documents will include Baroque treatises by Juan Carlos Amat and Nicola Matteis, Classical guitar methods by Fernando Sor, Napoleon Coste, Dionisio Aguado, Felix Horetzky and the early twentieth-century treatise by Emilio Pujol. The chapter provides a determination of the applicability of the practices and materials found in these documents to a modern methodology. The special circumstances of harmonic practice on the modern guitar will thus be placed in historical perspective, and the specific considerations and objectives of a modern method will be brought into clearer focus.

In Chapter II, a number of recent undergraduate music theory texts will be examined to determine the sequence of presentation of theoretical materials. The chapter provides an appraisal of both the ordering of broad concepts and the ordering of constituent details within individual chapters. The examined texts include *Music in Theory and Practice* by Benward and White, *Harmony and Voice Leading* by Aldwell and Schachter, and *Harmony in Context* by Roig-Francoli.⁹ A consensus and underlying logic in the sequencing will be revealed and the applicability or adaptability of this sequencing to a practical setting will be determined. Similarly, an examination of several keyboard harmony method books will be undertaken to see whether these demonstrate any congruence with the theory texts examined. The material will also be assessed to determine the applicability of the type, number and ordering of the exercises for potential use in a fretboard harmony method. Again, this will bring into

⁹ Bruce Benward and Gary White, *Music in Theory and Practice*, 6th ed. (Boston: McGraw-Hill, 1997); Edward Aldwell and Carl Schachter, *Harmony and Voice Leading*, 3rd ed. (Belmont, CA: Thomson, 2003); Miguel Roig-Francoli, *Harmony in Context* (New York: McGraw-Hill, 2003).

sharper relief the particular instrumental requirements and delimitations of fretboard harmony. The methods examined include *Creative Keyboard Musicianship* by R. and N. Lloyd, *Harmony and Ear-Training at the Keyboard* by Shumway and *Tonal Harmony for the Keyboard* by Wittlich and Martin.¹⁰

Chapter III comprises the fretboard harmony method book based on these evaluations and determinations. It provides exercises and direction for a full-year upper-level undergraduate course in fretboard harmony beginning with fundamental rudiments and moving progressively to the application of harmony as it existed at the end of the common-practice period.

Chapter IV is a conclusion, providing a summary of the study and a brief exploration of some possible directions for future research.

It is expected that this study will correct a conspicuous deficit in current guitar pedagogy in North America. It is anticipated that undergraduate guitarists using the method will improve their skills as fretboard practitioners and their overall abilities as performers. The study will also provide a reference for the historical use of the guitar as an instrument of harmony and a point of departure for further study on instrumental function.

¹⁰ Ruth and Norman Lloyd, *Creative Keyboard Musicianship* (New York: Dodd, Mead, 1975); Charles Shumway, *Harmony and Ear-Training at the Keyboard* (Dubuque: William C. Brown, 1984); Gary Wittlich and Deborah Martin, *Tonal Harmony for the Keyboard* (New York: Schirmer, 1989).

Chapter I

Toward Effective Fretboard Harmony: An Historical Overview of the Guitar in its Use as an Instrument of Harmony

A prudent first step in creating an effective approach to fretboard harmony is to examine relevant historical documents to determine if they provide modes of thinking, approaches and materials that can enlighten the modern guitarist's fretboard practice. A survey of these documents should also be of consequence in assessing the development of the guitar as an instrument of harmony. What was the state of harmonic awareness and general harmonic conception of the guitar through the stages of its development? What materials were available to guitarists of the day, what do those materials reveal about this awareness and conception and can they inform the modern study of harmony on the guitar? To answer these questions this chapter will examine representative works from the Renaissance, Baroque and Classical periods, with emphasis on *Le second livre de guiterne* (1553) by Guillaume Morlaye, *The False Consonances of Music* (1682) by Nicola Matteis, *Sor's Method for the Spanish Guitar* (1830) which is an English translation of the famous method by Fernando Sor, and *Preludes, Cadences and Modulations, op.21* by Felix Horetzky.¹¹

¹¹ Guillaume Morlaye, James Tyler ed., *Guillaume Morlaye, Four Guitar Books* (Monaco: Editions Chanterelle, 1980); Nicola Matteis, James Tyler, ed., *Nicola Matteis, The False Consonances of Music (1682) Complete Facsimile Edition* (Monaco, Editions Chanterelle, 1980); Fernando Sor, *Sor's Method for the Spanish Guitar* ed. J. Merrick (London, 1830), (New York: Da Capo Press, 1971); Felix Horetzky, *Preludes Cadences and Modulations* (London: Metzler and Son, ca.1835).

The Renaissance Guitar Books

The Renaissance guitar was a four-course instrument with ten frets and tuning pegs inserted either from the side or back of the instrument's head.¹² It was about half the size of a modern guitar. The tuning of the courses was in the same interval pattern as the highest four strings on the modern guitar, i.e., ascending from the lowest string, a perfect fourth followed by a major third and another perfect fourth. The middle of the sixteenth-century saw a flowering of publications for the instrument. The great Parisian books from the period (Le Roy and Ballard, Morlaye, Gorlier, etc.) consist primarily of intabulated contrapuntal fantasias and dances and demonstrate outstanding compositional resourcefulness, substantive contrapuntal textures and concise forms. Considered in the perspective of our present purpose, there is, unfortunately, only limited harmonic interest in these books.

There is evidence that a *rasgueado*, or chord strumming, tradition existed for this instrument in the years preceding the publication of the Parisian guitar books. Juan Bermudo, in his treatise of 1555, stated that the strumming practice had fallen out of fashion and it is reasonable, even beyond Bermudo's assertion, to speculate that there must have been a *rasgueado* or strumming practice in the early Renaissance.¹³ There seem to be numerous predictable and measurable psycho-biological interactions which occur when a human being takes up a guitar, and surely the simplest of these is

¹² A "course" is a doubled string. Two strings, tuned in unison or an octave apart, set in close proximity of one another, are plucked simultaneously and function as one string does on the modern instrument.

¹³ Juan Bermudo, *Declaracion de instrumentos musicales* (1555) in James Tyler, "The Renaissance Guitar 1500-1650," *Early Music* 3/4 (1975): 341-347.

the seemingly pre-programmed compulsion to strike all the strings of the instrument at once – to strum it.

There are accompaniments for vocal pieces found in some of the books, along with intabulations of the *romanesca*, the *passamezzo*, and *conde claros*, which are essentially chordal sequences. However, there is little in this printed record to illuminate and clarify the practice. Ultimately, there is no systematic layout of chordal structures, no strumming indications and no other clear evidence that the instrument was conceived of as a vessel of harmony in the same way as its five-course successor was.

Certainly, the four-course instrument is limited. As Turnbull asserts, “the restricted range of the four courses of the small sixteenth century guitar inevitably resulted in an harmonically limited style...”¹⁴ More importantly, there had not yet evolved a structurally detailed and nuanced harmonic system accounting for vertical harmonic structures and their movements. This was to come only later. As Carl Dahlhaus notes:

Tonal composition using chords, as it gradually evolved during the 17th and 18th centuries, can be distinguished from modal composition using intervals, first (as already mentioned) by its conception of the chord as a primary, indivisible unit, second by its referral of every chord to a single tonal

¹⁴ Harvey Turnbull, *The Guitar from the Renaissance to the Present Day* (London: B.T. Batsford, 1974), 38.

centre and third by its segregation of intervallic dissonances into the categories of dissonant chords and notes foreign to the harmony.¹⁵

It is not surprising that textures in Renaissance guitar music reflect the contemporary tendency to conceive music in a linear, and not a chordal, manner.

These factors all substantively limit the utility of the existing Renaissance guitar books in formulating modern fretboard practice. Figure 1, a *gaillarde* from Morlaye's *Le Second Livre de Guiterne* (1553), shows rhythmic vitality, a lively contrapuntal usage and formal clarity. It is typical of guitar music from the period in that it demonstrates no chordal reiteration or patterning, no chord symbols and no strumming indications. The music is not tonal, and it would be anachronistic to impose on it an harmonic analysis. Within fifty years of publication of Morlaye's *Second Livre*, however, the situation would change significantly, and the guitar would begin to function almost exclusively as an harmonic instrument.

¹⁵ Carl Dahlhaus, "Harmony," *Grove Music Online*, ed. Laura Macy (accessed Nov. 20, 2007) <http://www.grovemusic.com.myaccess.library.utoronto.ca>

Gaillarde

Guillaume Morlaye
arr. J. McFadden

Figure 1. Transcription of a *galliarde* from Morlaye's *Second Livre de Guiterne* (1553)

The Baroque Guitar Treatises

In Spain, in the mid to late sixteenth century, the guitar evolved into a slightly larger, more ornate instrument with an added fifth course. At the advent of the Baroque era, a small guitar treatise in Spanish by the Catalan physician and guitar enthusiast Joan Carles Amat was published. *La Guitarra Espanola de cinco ordenes*

(1596) typifies what would become the Baroque era's core notions about the guitar. It describes a method of *rasgueado* playing for solo performance of grounds and dances (*paseos*, *villanos*, *pavanillas* and *guardame las vacas*, also known as the *romanescsa*.) and for accompanying the voice. In the fifth chapter it features an ingenious circular chart that shows fret placement and specific left-hand fingerings for twenty-four major (“N”) and minor (“B”) chords. The chords are labeled with numbers in the perimeter

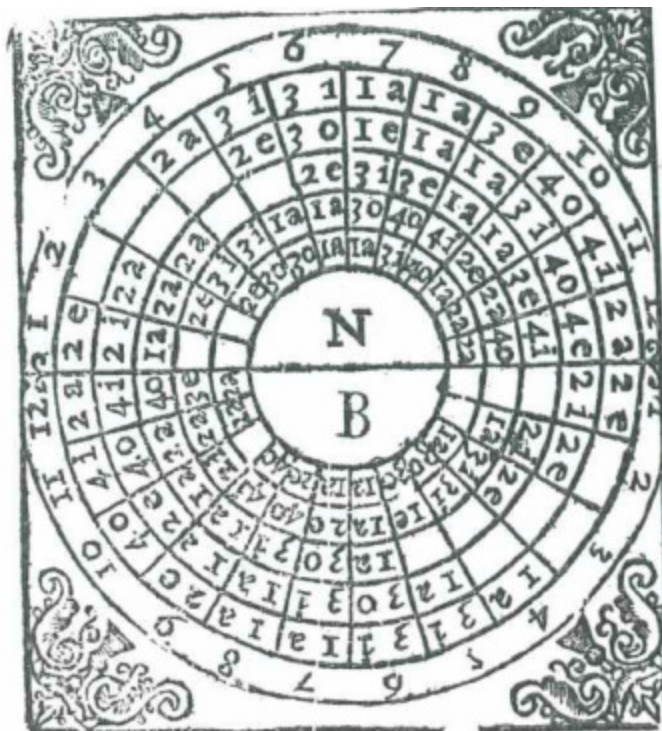


Figure 2. Amat's circle chart of chords.

of the circle; “1,” for example, is what modern guitarists would recognize as an E-major chord form. The amateur musician who was the presumed user of the book, was meant to memorize the labels and apply the chords to the various dances and grounds that followed.¹⁶

¹⁶ Monica Hall, “The ‘Guitarra Espanola’ of Joan Carles Amat,” *Early Music* 6/3 (1978): 362-373.

This discloses a conception of the guitar as an harmonic instrument first and foremost. It comes at the very birth of a triadic tradition which was to dominate western music for the next 300 years. Christensen has postulated in fact, that Baroque guitar practice actually had a potent effect on the development of harmonic theory later in the century.

... for 17th-century guitarists....chords became independent and autonomous compositional constructs that could be inverted and juxtaposed freely. This chordal mentality allowed them to test and exploit harmonic relationships with far greater license than was available to keyboardists, whose practice was heavily constrained by contrapuntal exigencies.¹⁷

The 'Spanish Guitar' as it is called in Amat's treatise and elsewhere, was to be at least as popular in Italy as in Spain itself. Almost all Italian sources from the period use a chord system, the *alfabeto*, which employed letters of the alphabet, rather than numbers, to signify chord shapes on the guitar. There appeared well over two hundred printed and manuscript sources using this system during the seventeenth century, including strictly *alfabeto* solos, strictly *alfabeto* song books, mixed tablature solos and mixed tablature songbooks.¹⁸ Amat's number system, the Italian *alfabeto* and, most significantly, the vast body of published material from the

¹⁷ Thomas Christensen, "The Spanish Baroque Guitar and Seventeenth-Century Triadic Theory," *Journal of Music Theory* 36/1 (1992): 2.

¹⁸ James Tyler and Paul Sparks, *The Guitar from the Renaissance to the Classical Era* (Oxford: Oxford University Press, 2002), 85-99. Mixed tablature is a notation system which shows finger placement and rhythm of plucked passages and *alfabeto* letters as short-hand for chords in the texture.

period confirm the prevailing conception of the Baroque guitar as an instrument primarily of harmony and less an instrument of counterpoint or melody.

This harmonic thinking, however, lacked a solid structural framework. Many of the chords given in the various systems are formulated with a seeming disregard for voice-leading consequences, inversion and functionality, which led to perceptions even during the period that the guitar was operating outside conventional practice.¹⁹ In many earlier books this was perhaps primarily a case of maintaining simplicity for the amateur performers who would be the primary users. However, the nature of the instrument's tuning also contributed to this “incorrect” usage. The so called re-entrant or semi re-entrant tuning, an interruption of the descending pattern of intervals from the highest to lowest string on the guitar, replaces what would logically be the lowest-sounding string or strings with higher-sounding ones, thus often displacing by an octave what should be the bass note of a strummed chord.

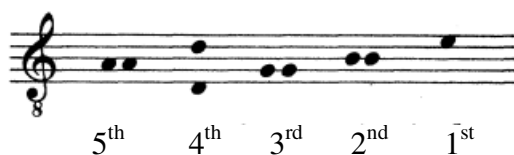


Figure 3. The commonly used “semi re-entrant” tuning of the Baroque guitar.

The False Consonances of Music is a figured bass treatise for guitar which appeared in English in 1682 two years after its initial publication in Italian. It is a very thorough and sophisticated exposition of harmony on the guitar but, published

¹⁹ Christensen, “The Spanish Baroque Guitar,” 2.

almost 100 years after Amat, it still seems to show a limited concern for voice leading and inversion. The author, Nicola Matteis, first presents a section intended as a refresher for the reader, giving basic musical information. He then deals with accompaniment in two formats; firstly, charts are given on cadential fingerings and chord progressions and then figured bass examples are presented. Unlike some earlier authors, Matteis has an expectation that his readers will be conversant with music theory and he presents extensive discussions of various cadential formulae including those with suspensions of various types.²⁰ Still, it is clear that because of the instrument's peculiarities, the realizations given are not fully adequate as examples of the craft for the modern guitarist. Some of them show compositional flair and bear the signs of thoughtful practice, but they are marked by a liberal scattering of “errors” in voice leading arising from the limits of five strings and the presumed semi re-entrant tuning.²¹ It should be noted, however, that these shortcomings are not so egregious in their original context; they become substantially exaggerated with translation to the modern instrument. The double courses and lower tension of the strings of the Baroque guitar tended to obscure the perception of inversion.²²

Let us examine one of Matteis' realizations given in the second part of the

²⁰ Jocelyn Nelson, “Matteis and Seventeenth-Century Guitar Accompaniment,” *LSA Quarterly* 40/3 (2005): 16-23.

²¹ Jennie Congelton, “The False Consonances of Music,” *Early Music* 9/4 (1981): 463-469. Matteis does not specify a tuning but Congelton argues that semi re-entrant tuning was intended; the treatise was directed at English users who would have already adopted Corbetta’s use of this tuning. The less likely non re-entrant tuning, with bourdons on the 4th and 5th courses would yield different but not substantively more “correct” realizations.

²² Robert Strizich, *The Complete Guitar Works of Gaspar Sanz* (Saint-Nicolas, QC: Éditions Doberman-Yppan, 1999), 11.

treatise. He offers this particular example as a way of “giving a bass life and spirit”. His realization is highly effective within the limitations he faces but it does not meet modern expectations of voice leading. Below is the figured bass passage in question (fig.4) followed by a notation of the actual sound produced by Matteis' suggested realization (fig.5).

Figure 4. Matteis figured bass example from part II of *False Consonances of Music*.

Figure 5. Actual sound produced by Matteis' given realization.

It can readily be seen that inversions prescribed in the figured bass are often not given in the realization and the voice leading is not perfect. Measure 1 shows one of the typical unconventional results of the rasgueado style or the use of re-entrant tuning; the given bass prescribes a root-position chord for the opening a-minor

sonority but in the realization it sounds as second-inversion chord. In this case the problem is a result of the Baroque guitarist's inevitable recourse to *rasgueado* or strumming. The fifth course, sounded as part of the *rasgueado* chord, yields a second-space A as opposed to the A on the second ledger line below the staff. Later, the V6/5 chord in beat 4 of the same measure should resolve to a chord with second space A as the bass note but again, the stylistic imperative of *rasgueado* produces a tonic 6/4 chord. On beat four of m.3, a 4/3 dominant chord is produced where a root-position chord is prescribed. It resolves in turn to a tonic chord with the root a full 7th above the previous bass note, the fifth course sounding a third-space C as opposed to “middle” C. This error is a consequence of the presumed semi re-entrant tuning. In a further example of unconventional voice movement, m. 6 gives a V4/3 chord in lieu of the prescribed root position 7th chord and the next chord sounds a major-major seventh with the 7th in the bass. These last two anomalies are also a result of the tuning.

Below, in fig. 6, is a realization for the modern guitar which demonstrates the ease of correcting the anomalies. The presence of the 6th string, the elimination of the re-entrant tuning and the emancipation from persistent *rasgueado* make conventional realization not just possible but, in fact, the more natural approach for the modern guitar. Note that the bass can be made to unfold in the original intervallic relationships and that the voice leading conforms to modern notions of correctness. The added dotted notes in the soprano, which are largely responsible for the aforesaid vitality of Matteis' realization, are maintained. The lute, having many more bass strings, would have been capable of similar “corrections.” A contemporary lute treatise, which Matteis suspected was adapted directly from the *False Consonances* without

attribution, does in fact show similarly corrected voice-leading and inversion.²³



Figure 6. Matteis' figured bass realized for modern guitar.

It must be said that despite its frustration of modern expectations, Baroque guitar realization retains an appeal to the modern ear. The instrument's bright tessitura, the crispness of its rhythmic voice and its textural flexibility are charming and surely made it a desired participant in the continuo body, especially in consort with a bass viol or other low instrument to provide the prescribed bass notes.²⁴ The solo music for the instrument has survived for centuries in some highly sophisticated and varied collections. Running parallel with the tradition in art music was an avid amateur guitar practice which persisted for decades. Its emphasis on strummed-chord voice accompaniment is remarkably similar to the popular guitar practice of today.

But this same *rasgueado* and tuning choice sets limits on the usefulness of the period documents in the development of modern fretboard practice. A preliminary examination of other figured bass treatises of the day, including *Resumen de*

²³ Sylvia Garnsey, "The Use of Hand-Plucked Instruments in the Continuo Body: Nicola Matteis," *Music and Letters* 47/2 (1966): 135-140.

²⁴ Matteis, v.

Acompañar la Parte con la Guitarra by Santiago de Murcia (1714), and earlier treatises by Corbetta (1643, 1648 and 1671) and Foscarini (ca. 1640), revealed no full remedy. Certainly though, these last two show advanced harmonic thinking for the period as evidenced by the common appearance of chains of suspensions in a melody over pre-tonal accompaniment.²⁵

While acknowledging its limitations as a direct model for modern fretboard practice, it would be imprudent to dismiss the *The False Consonances*. At a minimum, it provides a vivid record of the style of accompanying in the period. The progressive layout of the material in the treatise is carefully oriented to help guitarists develop a natural and intuitive facility using the guitar as an harmonic instrument. It gives a substantial store of examples which can serve as models for style (as manifested for example, in the added soprano notes of Matteis' realization) if distilled and cleared of “errors.” It gives artistically valid realizations and access to many authentic raw figured basses, created in the period and intended for exploration on the ancestral instrument. Finally, and significantly, it is an important treatise in the body of works from the period which show the guitar already functioning harmonically at the advent of common tonal practice.

Certainly, the referencing of this and similar works from the period would

²⁵ Richard Pinnell, “The Role of Francesco Corbetta (1615-1681) in the Development of Music for the Baroque Guitar, Including a Transcription of his Complete Works (Volumes I and II),” diss., University of California at Los Angeles, 1976, 100-104.

provide a more endogenous, while perhaps less effective, approach than adapting keyboard treatises to the purpose. It has been shown that, with the addition of the sixth string and consecutive tuning, we can avoid systemic parallels and voice-leading errors. Only if we choose to realize figured basses with persistent full chord strumming, do we risk re-introducing linear anomalies.

The Classical Guitar Treatises

It is natural to assume that the *classical* guitar would likely be a more salutary model in its historical use as an harmonic instrument. What we now refer to as the classical guitar emerged in the latter part of the eighteenth century. An evolution had taken place starting in about 1750 that resulted in a guitar with double courses abandoned in favour of single strings, with an added 6th string on the bass side and the uninterrupted descending interval pattern adopted as standard tuning. The modern guitar differs substantively from this Classical guitar only in size, having a typical functional string length of about 650 millimeters (as opposed to the 620 or 630 millimeters on most nineteenth-century instruments) and a larger, deeper body.

Most of the guitar methods of the nineteenth century discuss harmony on the guitar only in a superficial way. Dionisio Aguado's (1784-1849) *Méthode Complète pour la Guitare*²⁶ is in two parts, the first being purely theoretical and the second the supposed practical application. The first part begins with the nomenclature of the parts of the guitar followed by discussions of seating and hand positions. Next, rudimentary

²⁶ Dionisio Aguado, *Méthode Complète pour la Guitare*, trans. F. de Fossa (Paris, ca.1826).

theory is addressed, starting as simply as possible with the identification of the note as the basic unit of musical notation. Later, Aguado demonstrates the C-major scale, setting it on one string to show the internal interval pattern. He chooses the second string for this purpose, and this is both convenient and clever since the note C is the first fretted note on this string. Following this are explanations of accidentals, major and minor modes, definitions of melody and harmony, rhythmic values, ties, etc. The second part begins with a series of lessons, the first concerned with playing single lines in simple duple, simple triple and common time, then in compound meters. In the next section, chords are introduced. There are over 100 short *leçons* in this section arranged in progressive increments of technical difficulty.

Aguado's method is obviously thorough but there is no real attempt at direct integration between theoretical principles and their application on the guitar. It discusses harmonic elements but ultimately, it is not intended as a method for harmonic practice on the guitar and thus has little to offer the modern student of fretboard harmony.

Perhaps the most recognized method of the period is that by Fernando Sor (1778-1839).²⁷ It treats a number of subjects: seating and hand positions, tuning the guitar, C-major diatonic notes on the fretboard, tone colour and imitation of other instruments, melodic placement of intervals on one string (i.e. the chromatic placement of frets), playing of scales in various keys on one string and the reduction of

²⁷ Fernando Sor, *Sor's Method for the Spanish Guitar*, ed. J. Merrick (London, 1830), (New York: Da Capo Press, 1971).

a quartet texture to arpeggios. The core of Sor's discussion of harmony on the guitar is concerned with training his reader in the playing and recognition of two intervals, the 3rd and the 6th, on the guitar. He describes a process for memorizing diatonic intervals thereby allowing easy, automatic transposition of the major scale doubled in 3^{rds} into any key. He gives some exercises from which to learn this patterning, and shows staff notation of both the scale in 3^{rds} and the scale in 6^{ths} for all twelve keys. The reader is referred to indices at the end of the volume where he provides six exercises for 3^{rds} and six more for 6^{ths}. Following this, Sor proposes a series of chords and then deconstructs them as piles of 3^{rds} and 6^{ths}. He explains in great detail how the fingering of the 3^{rds} or 6^{ths} in the chords determines the fingering for the chord as a whole. He asserts, in fact, that the knowledge of these two intervals alone is the fundamental key to left-hand processing of any repertoire in existence to that time. It will be of foundational value, he says, to any guitarist wanting to play his, Sor's, pieces.

Sor purposefully provides a kind of rubric to accomplish the playing of 3^{rds} in a way that requires of the user no real understanding of the underlying theory. This evokes the question of where a fretboard practitioner should reside on the spectrum between purely reflexive execution and simultaneous cognitive understanding. Sor seems to be encouraging more reflex, presuming perhaps that his readers will be amateurs and little given to theoretical detail. His 3^{rds} and 6^{ths} system is finally applied very strictly to a guitar reduction of the orchestrated accompaniment to Uriel's first aria and the subsequent chorus from Haydn's *Creation*. In describing how to play this richly harmonic accompaniment, he never makes reference to any chord as an entity in itself. In fact he does not expect or try to cultivate in the user a tactile integration of

harmonic understanding beyond the 3rds and 6ths – and even those intervals are not really associated with a complete theoretical knowledge.

In a horribly tantalizing statement, Sor says that in a forthcoming volume, he will explain and perhaps integrate everything: “I should like to explain how I reasoned with myself in order to form accompaniments; but beside its being impossible, without using terms I ought avoid employing, this rather belongs to the treatise I intend to publish, *On Harmony applied to the Guitar*.”²⁸ This treatise was never published.

Sor's method is positioned further along the route to being a model for harmonic practice on the modern guitar but is limited by its seeming obsession with the third and the sixth, even to the exclusion of a discussion of diatonic triads. A later edition of Sor's method by his student, the excellent composer Napoleon Coste (1806-1883), does not show any progress in this regard.

Coste expands on Sor's original method and reformats it, putting in many more exercises and locating them in the body of the work where they might be more pedagogically useful. He also adds information on portamento (much less prevalent in Sor's day than it was in Coste's) and slurring of scale passages (which Sor advocates, but does not demonstrate with exercises). He maintains and expands on Sor's 3rds and 6ths theorem, adding an extensive etude by way of demonstration. In addition, he includes an extended piece/etude involving harmonics following the theoretical discussion of that special technique. Coste includes a section on the guitar's 7th string,

²⁸ Sor, *Sor's Method for the Spanish Guitar*, 36.

which was a more customary addition by mid-century. He also inserts a series of transcriptions by the guitarist of Louis XIV's court, Robert de Visée, in one of the first published instances of transcription of the ancestral music of the instrument.

Transcription may be thought of as an advanced, practical manifestation of fretboard harmony principles but here, the pieces are simply presented and the process remains unexplained. Following this, Coste appends twenty-six etudes by Sor, reverently fingering the studies according to the principles of his master. Sor's extensive discussion of the fingering of the Haydn *Creation* movement, however, is omitted.

The *Esceula Razonada de la Guitarra* of Emilio Pujol (1886-1980) is a thorough and wide-ranging guitar method and is thought to be reflective of the ideas of Pujol's mentor Francisco Tarrega (1852-1909), a very significant historical figure in the development of modern guitar practice. It dissects the instrument to its most rudimentary components, discusses the history of the guitar in depth, explores playing position and use of the hands in great detail, touches all fundamental techniques and even explores the psychology of the guitarist. It does not, however, contain any detailed discussion of harmony as applied to the guitar. In the first volume there is a substantive orientation with the fingerboard, dividing it into regions, showing explicitly the range and all notes of each string, giving a complete table of equivalent notes (where on different strings a particular note can be found), and finally discussing how intervals are played on the instrument with clear diagrams. After this it is assumed the guitarist has a grasp of fretboard geography.

Certainly it would be advisable for any beginner to study this orientation with the instrument, and it would be essential to a fundamentally sound study of fretboard harmony. In methodical detail, Pujol continues by giving the playing position of every interval within the octave with accompanying fretboard diagrams, and this too is surely essential in the study of fretboard harmony. However, Pujol's chosen order of introduction discloses a disconnection with interval theory. He introduces the intervals in increasing size starting with the minor 2nd and proceeding through the major 7th without regard for the notions of consonance and dissonance. Further, he forgoes the opportunity to extend the discussion of intervals into the formulation of chords. Aside from a historical reference to *alfabeto* in his discussion of notation, no chord formulations are discussed and no chord diagrams are shown. Unfortunately, this otherwise rich and important document does not treat harmonic practice on the guitar in any meaningful way.

Felix Horetzky's (1796-1870) short treatise, *Preludes, Cadences and Modulations*, op.21, is intended more as harmony book than any of the methods examined above. Horetzky was a Polish guitarist and composer who studied and worked in Vienna, Frankfurt, Dublin and Edinburgh.²⁹ He states in the preface of his *Instructive Exercises*, op.15, that he was a student of Mauro Giuliani and that he offers the exercises to instruct amateurs in Giuliani's playing style. He also suggests that he

²⁹ Barbara Chmara-Żackiewicz, "Horecki, Feliks" *Grove Music Online. Oxford Music Online*. Accessed 26 May. 2009
<http://www.oxfordmusiconline.com.myaccess.library.utoronto.ca/subscriber/article/grove/music/13346>>. The Grove article cites a review of Horetzky's op.18, *Amusements* from 1833 which, presuming a chronological assignment of opus numbers, puts the publication of *Preludes, Cadences and Modulations*, op.21 sometime after 1833. The source document gives no date of publication.

has “taken care throughout the whole not to overlook a pleasing Melody and a correct Musical Harmony,” indicating that he was clearly conscious of harmonic principles realized on the guitar.

Preludes, Cadences and Modulations opens with seven short preludes and, though the author never offers instruction or direction in the text, each of these displays the concision, sequencing and literalist layout of what we would recognize today as fretboard harmony exercises. Prelude no. 1 begins with an ascending two-octave C major scale followed by a I – ii7 – I6 progression under a tonic pedal. It continues with descending first-inversion chords. Next is a sequence of secondary dominants leading to the final I6/4 – V7 – I cadence (see fig.7). The subsequent preludes contain some more freely composed music but the repeated arpeggio texture of no.3 and the *ostinati* in nos. 4 and 5 seem to be examples of the simplification of texture for the purpose of harmonic exploration. Curiously, the composer chooses to contextualize harmony in this way while only later presenting more rudimentary exercises.

The image shows a musical score for 'Prelude no. 1' from Horetzky's 'Preludes, Cadences and Modulations, op. 21'. The score is written in C major and consists of five staves of music. The tempo/mood is marked 'a piacere'. Red annotations below the staves indicate chord progressions. The first staff has annotations V7/IV, IV, V7/V, V, and V7/vi. The second staff has annotations vi, V7/iii, V7/IV, V7, V7/IV, IV, V7/III, V/vi, V7/ii, V7/V, V7, and V7/IV. The third staff has annotations IV, i6/4, and V7.

Figure 7. Prelude no.1 from Horetzky's *Preludes, Cadences and Modulations*, op.21.

The next section, *Cadences*, begins with what are in fact several extended progressions in C major written in whole-note, block chords in four voices with correct voice leading. These progressions use a full diatonic vocabulary and many inverted chord forms. They also contain some chromaticism in the form of secondary tonicizations and augmented 6th chords. They do not seem to be presented in a strict progression of difficulty, though the first example has seven chords including a V/vi and subsequent examples seem generally longer with more chromaticism. There are some anomalous progressions as well: the abandonment of the tessitura in the final example in line three and the progression V – IV given in the final example of line four (see fig. 8) are peculiar.

CADENCES.

Figure 8. The first four lines of the *Cadences* chapter from Horetzky's *Preludes, Cadences and Modulations*, op.21.

The next three lines of the chapter are tonicizations starting with a C major chord in which each tonic gets converted to a dominant seventh chord and is resolved, thus forming a reverse progression through the circle of fifths. The key signatures are shown and an enharmonic shift is given at G \flat /F#. Following this, Horetzky proceeds through the circle of fifths providing a series of progressions in all twelve major keys, each one followed by a corresponding progression in the relative minor.

The chapter *Modulations* gives a chart showing very sharply distilled progressions in the typical guitar keys C+, G+, D+ and A+. In each case, short progressions illustrate modulation to the keys of vi, IV, V, ii and iii relative to the original key.

Figure 9. The first lines of the *Modulations* chapter from Horetzky's *Preludes, Cadences and Modulations*, op.21.

Horetzky's modest treatise is a clear example of early fretboard harmony exposition and must on that basis be considered historically significant. It shows a much more deliberate intent to explore the subject in an organized manner than any of the contemporary documents examined. It is an exciting discovery for those interested in harmony on the guitar. Even its method of presentation can be defended in that it seems to follow precedent: the deployment, for example, of the concise but constrained *règle de l'octave* in so many Baroque harmony treatises.³⁰ Even so, *Preludes, Cadences and Modulations* is not a fully adequate model for a complete

³⁰ Thomas Christensen, "The 'Règle de l'Octave' in Thorough-Bass Theory and Practice," *Acta Musicologica* 64/2 (1992): 91-117.

modern fretboard harmony method. Again, it gives no explanation in text for the material presented and begins without any rudimentary preparation. Its full use of all diatonic harmonies without some progressive introduction of chords would not be an effective pedagogical strategy in a modern university curriculum. Chord function is not explored, so the knowledge imparted is inflexible and constrained to the keys shown. Voice leading is not discussed and there are even some small voice-leading errors. Chromaticism is introduced without foundation in diatonic progression and the document is far too small in scope to be truly complete. It is more compendium than pedagogically reasoned method, and any advanced application of the knowledge it contains is left to the user. Nonetheless, it remains a fascinating and important document demonstrating the acknowledgement by a 19th century guitarist, composer and teacher of the importance of fretboard harmony.

Conclusions

The examination of the printed heritage of guitar music reveals an interesting perspective on the guitar as an harmonic instrument. It seems there can be no direct use of the methods and practices of the ancient guitarists yet there are still valuable perspectives to be gained from examining the materials. The Renaissance guitar books contained excellent music but show little evidence of an harmonic conception of the guitar aside from the simple underlying chord patterns of the folias, passamezzo, conde claros and romanesca. The Baroque guitar treatises by contrast show an elevated degree of harmonic thinking but the differences in organology and instrumental function are too great for a direct adoption of materials and methods by modern players. The Classical methods were meant to be general works - the titles of so many

of them were adorned with the adjective *complète* – and while they clearly manifest a conception of the guitar as an harmonic instrument, they make little effort, with the exception of Horetzky's *Preludes, Cadences and Modulations*, to integrate harmonic understanding and physical execution on the guitar.

Chapter II

Materials of Fretboard Harmony: The Efficacy of Music Theory and Keyboard Harmony as Pedagogical Models

Rationale and Objective

In the keyboard harmony manual *Tonal Harmony for the Keyboard*, Gary Wittlich and Deborah Martin provide a rationale for the continuing presence of keyboard harmony in undergraduate curricula, describing it as an effective method of reinforcing the classroom understanding of music theory and a tool for rescuing from abstraction the harmonic patterns, chord relationships and voice-leading protocols that make up the core of the material. A similar but extended and modified argument could be made for the presence of *fretboard* harmony in undergraduate curricula. Examining harmonic practice in neighbouring disciplines can likewise provide models for fretboard harmony but not without extension and modification of those models.

The intent of this chapter is to examine some contemporary texts from related disciplines to determine the logical pedagogical designs inherent in their presentation of materials of harmony. A pedagogically sound fretboard harmony method should be based upon the results of a search for fundamental practices in the domain of general

music theory, the essential basis on which practical application should be founded, and in keyboard harmony, the logical precedent, in the absence of effective existing guitar models, for fretboard harmony. The goal is to examine such fundamental practices by investigating three commonly used music theory texts and four keyboard harmony methods, illuminating any connections and concordances among them, assessing the scopes of each text, examining their priorities, assessing the ordering, type and number of exercises they present, and taking measure of the extent of their applicability to a fretboard harmony method.

The theory texts to be examined are *Music in Theory and Practice* (1997), by Bruce Benward (University of Wisconsin - Madison) and Gary White (Iowa State University); *Harmony and Voice Leading* (2003), by Edward Aldwell (Curtis Institute of Music) and Carl Schachter (City University of New York) and *Harmony in Context* (2003), by Miguel A. Roig-Francoli (University of Cincinnati College-Conservatory of Music).

The keyboard harmony texts to be examined are: *A New Approach to Keyboard Harmony* (1979), by Allen Brings, Charles Burkhart, et al (City University of New York); *Tonal Harmony for the Keyboard* (1989) by Gary Wittlich and Deborah Martin (Indiana University); *Harmony and Ear Training at the Keyboard* (1984) by Stanley Shumway (University of Kansas) and *Creative Keyboard Musicianship* (1975), by Ruth and Norman Lloyd (Juilliard School of Music).

Theory Texts

Music in Theory and Practice (1997) by Benward and White is a multi-volume work intended to cover two years of core music theory courses for undergraduates. It is a large and thorough text, and its content will be described here in some detail in order to provide a basis for comparison with other texts.

The authors start with the most basic constitutive elements of sound and musical notation. Next, the treatment of harmony begins with an account of scales. The diatonic major, then minor scales, are introduced and the authors go on to discuss relative and parallel relationships, non-diatonic scales and modes. The next major topic presented is the interval with major, minor and perfect followed by diminished and augmented intervals. Next is the inversion of intervals followed by a discussion of transposition.

This seems a logical presentation. Scales, as the basic theoretical unit of musical construction, are presented first. The major scales are first among them as they provide a basis for exploring relative relationships and the derivation of minor scales. Scales also provide the basic framework for the understanding of the intervals, which are introduced next. The consonant intervals are discussed first, as they lead naturally into a discussion of primary chords later in the next chapter, and dissonances are discussed second, as they naturally give rise to a discussion of the more complex chords.

The next chapter begins the rudimentary discussion of chords starting with

the simplest of formulations, the triad. Again, the major-minor-diminished-augmented format is used to introduce the triads. There is then an expansion of the discussion to triad orientation, first root-position triads and then inverted triads. Following this, figured bass symbols are introduced. Next, the simplest of triadic progressions, the cadences (perfect, imperfect, plagal and deceptive) are explained.

After several chapters covering basics of melodic construction, texture and chorale writing, the text returns to a deeper discussion of harmony beginning with the basics of progression, functionality or the “relationship of chords” and then longer chord progressions. Later chapters deal with dominant 7th, their inversions, their resolutions and finally, the so-called circle progression, or sequences of dominant seventh resolutions. The vii diminished 7th is then introduced and non-dominant 7th sonorities follow. In the next chapter, modulation is examined and later still, secondary dominants are discussed. It is not until the second part of the second volume of the text that borrowed chords, 9th, 11th and 13th are introduced. This is a logical place to locate this discussion as these constructs are all extensions of simple triads. More genuine chromaticism then follows, starting with the Neapolitan 6th chord followed by augmented 6th chords in a separate chapter. In later chapters, the authors discuss harmony after the common-practice period, exceeding the intended scope of the fretboard harmony method and thus providing a sensible endpoint to this inventory.

Here, then, is a summary of the basic design of this text:

Scales

Major, minor

Intervals

Major, minor, perfect, diminished and augmented

Chords

Triads (major, minor, diminished, augmented)

Triad inversion

Figured bass symbols

Cadences (perfect, imperfect, plagal, deceptive)

Harmonic Progression

Descending root progression leading to ii – V – I progression

Major 2nd progressions leading to IV – V and V – vi progressions.

Progression by 3rd leading to I – iv – IV – ii

Seventh chords, inversion and resolutionModulation

Secondary dominants

Extended tertian chordsNeapolitan chordAugmented 6th chord

The essential ordering of concepts in Benward and White is logical, presenting fundamental concepts first and building from them in a pattern of increasing complexity as the text progresses. Most of the other texts discussed here basically conform to the same model. *Harmony and Voice Leading* by Aldwell and Schachter is similar in its aim to Benward and White, that is, it is designed for a two-year undergraduate program in core materials. It presumes a basic literacy among its users yet it still furnishes three units on fundamentals which the authors intend as a primer. Its endpoint is advanced chromaticism, but there is no discussion of atonal or serial music as there is in Benward and White. Chapter 1 discusses key and single note considerations, the notion of passing and neighbour tones in melody, the chord as a

basic construct and the major scale. Minor scales and modes are examined next. The following chapter treats intervals and describes the so-called ‘group one’, or perfect intervals, and the augmented and diminished results of half-step modification, then the ‘group two’, or major intervals and the derivation of minor, diminished and augmented intervals from them. The concepts of consonance and dissonance and intervals within a key are discussed in this context.

Chapter 4 deals with triads, their occurrences within keys, figured bass symbols and then 7th chords. The next chapter concerns part writing and chorale texture, both of which are imperative in establishing the authors’ stated emphasis on voice leading. The following chapter continues the discussion of harmony with the I – V – I progression, the cadences and the introduction of the V7. The next chapter deals with first inversions of I, V and vii. Following in the next chapters are inversions of V7, pre-dominant chords, and the cadential 6/4. It is notable here that the authors use a different nomenclature for what has traditionally been called the I6/4 chord, referring to it as V6/4 in reference to its derivation by double appoggiatura of the V chord. After this the VI and IV6, ii7 and IV7 and, finally, III sonorities are covered. This mirrors the logical process evident in Benward and White where tonal hierarchy determines order of presentation of chords. Still later, modulation and tonicization, ascending and descending 5th progressions, falling 3rd progressions, combining modes (or borrowed chords as described by Benward and White), secondary dominants, extended triads and finally Neapolitan and Augmented 6th chords are discussed.

Harmony and Voice Leading then, is organized similarly to Benward and

White with minor differences in focus, scope, ordering of internal sections and nomenclature. The authors also make a bold point by beginning with a musical example before even one word of text appears. It can be asserted nonetheless that there is consensus between them based on a logical, vertical orientation from single notes to intervals to triads to seventh chords, then to chord function, chord progression modulation, and finally to chromatic harmony.

Beyond the logic of its format, *Harmony and Voice Leading* also provides a strong pedagogical model for the deployment of exercises for anchoring new concepts. Each chapter ends with a series of varied exercises, and while the intent is that the exercises are written and less specifically played, the variety, type and presentation is noteworthy. Take, for example, the materials and processes following the introduction of ii7 and IV7 chords (pp.188-190). The authors first give a preliminary exercise in writing progressions given in Roman numerals without specified rhythm, melody or bass, the fewer constraints making the exercise simpler. Next, a quasi-compositional exercise is prescribed in which the student is to use specific phrase structures while incorporating the new harmonies. Following this are exercises in melody harmonization using the new harmonies. A figured bass with the new harmonies is then presented for harmonization. Significantly, the variety of exercises here addresses different learning strategies, the presentation is progressive and a creative component is included.

Harmony in Context (2003) by Miguel A. Roig-Francoli does not show significant deviation in the layout of materials when compared either to Benward and

White or Aldwell and Schachter. It does emphasize the actual musical use of the concepts it discusses, and in that way can be construed as perhaps a more direct model for a method book. In an introductory chapter, the author elucidates notation, the notions of consonance and dissonance, scales and the idea of key, triads, chord function and symbology and figured bass. When the discussion of diatonic harmony is undertaken in Part I, the first concept touched upon is harmonic progression, and simple progressions using I and V in root position are explored. Next, the subdominant chord is introduced and used in context, as the book's title mandates, to extend the previously introduced I – V – I progression (I and IV are used in alternation preceding the final V – I progression). Chapter 4 of Part I gives an introduction to triad inversion and offers melody harmonization as a way of contextualizing this new concept. Cadences are introduced next in Chapter 5 and perfect or “authentic” cadences are first in the sequence. These are followed by imperfect or “half-cadences,” plagal, and finally, deceptive cadences. This sequence of presentation of materials conforms to the logic of starting with rudiments and progressively introducing context and complexity.

After Chapters 7 and 8, which deal with melodic organization, Chapter 9 marks the resumption of harmonic matters with an exploration of non-chord tones. Chapter 10 deals with 6/4 chords and follows Aldwell and Schachter in the labeling of cadential 6/4 chords. Melody harmonization is used here once again to effectively contextualize the concepts. The remaining diatonic chords are introduced in subsequent chapters in the following order:

ii

V7 and inversion

vii⁰

iii, vi and VII (sub-tonic), this latter as V of III in minor keys³¹

other diatonic 7th chords.

Part II of *Harmony in Context* examines chromatic harmony. In Chapters 16 and 17, secondary dominants are explored. The secondary leading-tone harmony is then introduced in Chapter 18 and harmonization of melodies is employed again to reinforce the use of this formulation. In Chapter 22 modal mixture is examined and in Chapter 23, the Neapolitan 6th and then the Augmented 6^{ths} are introduced. The last chapters dealing with common-practice harmony explore modulation to more distantly related keys.

Harmony in Context then, also reflects similar pedagogical assumptions in an ordering of presentation of theoretical principles that is logical and progressive, proceeds from the simple to the complex, and builds from rudiments in a vertical orientation. If these fundamental practices are taken as valid by consensus, fretboard harmony curriculum might follow this same order based solely on these same principles. But there are reasons beyond this which in fact reinforce the idea of conformance with the consensus pattern. Starting with single-note formulations is not only fundamental theoretically but is simpler technically and affords the opportunity to explore nomenclature and scale degree, transposition and the association of finger shape with scale degree and note function. Single-note exercises provide basic

³¹ This progression will be familiar to guitarists as being found in the bass “La Folia” which is the basis of many famous sets of variations for the instrument.

orientation and prime the brain to conceive, create and play, work imaginatively and develop a strong relationship between theoretical understanding and practical application. Intervals, as two-note constructs, should logically follow also in a practical method as they do in theory. As the building blocks of chords, their execution should be secure with both tactile and visual apperception solidified before the introduction of chords. Through interval exercises, a rudimentary harmonic realization on the guitar becomes more concrete and chords can then be built containing these interval shapes in a way that is illustrative of the underlying logic of fretboard geography. Once these rudiments have been established, their actual use can be initiated in the playing of progressions and the harmonization of melodies.

It is clear, however, that there need to be differences in method, emphasis and proportion between theoretical and practical expositions of the same material. The form of an instrumental application must be powerfully affected by the necessity of physical execution. Orientation with instrumental basics, a pursuit completely outside the scope of a theory text, must be an essential first step. There need to be several exercises for scales, designed to ensure the activation of the musical mind, and the advancement beyond rote playing. Exercises on key can be easily incorporated at this point with the use of movable scale forms; these are therefore best introduced before discussion of intervals and not after as in Benward and White. The introduction of triads must necessarily be a large section in fretboard practice, if not so much in keyboard harmony and even less so in pure theory. Exercises must be provided for every kind of triadic form, all of which have characteristic associated hand shapes,

whereas a simple explanation of triads with logical extrapolation is sufficient in theory. The introduction of figured bass has necessarily to follow the triad, chord and cadence exercises, and because it is perhaps the most important practical manifestation, its treatment must take up a larger portion of the fretboard harmony text when compared to its treatment in the theory books. There need to be exercises on melody harmonization and figured bass realization concurrent with the introduction of the various harmonic concepts, whereas no such exploration is ultimately necessary in theoretical texts. There will also be certain exclusions given the intended scope and imposed constraints of a fretboard harmony course. There will, for example, be no exercises dealing with modes, little emphasis on melody construction and development, no exercises on musical form and none on score reading (an element often included in keyboard methods but impractical on the guitar for reasons discussed below). It is an elemental paradox that practical harmony requires a pre-existing literacy and a secure understanding of theory but the music created is *not* written. A practical harmony method therefore has to strive especially to encourage the use of the ear and of the imagination. It must therefore encourage a reflective and explorative interaction with the instrument.

Keyboard Texts

Harmony and Ear Training at the Keyboard (1984) by Stanley Shumway is an extensive method that starts with keyboard orientation and ends, some 270 pages later, with serial, bitonal and atonal explorations. It is organized progressively in forty-seven 'projects' in four large units and is intended to cover four semesters of undergraduate study. Given the intended scope of a fretboard harmony method, the final harmonic goals of which are within common-practice limits, and the fact that few, if any, college programs offer any more than two semesters in fretboard harmony, it is expedient to examine the first half of this book as a potential model for a fretboard harmony method.

The book does have an introductory section but it is exceedingly brief. Project no.1 is concerned mostly with vocal pitch matching as a way of awakening the ear; active listening as an essential undertaking in practical harmony is a central conceit of the book. Project no.2 opens with the instruction to play *all* major and minor scales, singing the names of the scale degrees or intervals above or below. As the section progresses the playing of *all* intervals and *all* triads is introduced. There are few clear exercises and concordantly very little opportunity for the user to develop unassailable fundamentals.

The scope of the introduction given here would be completely inappropriate for a fretboard harmony method and immediately illuminates some of the essential differences that must characterize such a text. While a well-prepared undergraduate guitarist should be able to play all major and minor scales, the contingencies of the

fretboard force the imposition of a systematic approach. There are many ways to finger any scale on the guitar; not all forms are transposable and not all forms naturally extrapolate to two- and three-octave forms as they do on the piano. Playing intervals is not simply a matter of spacing on the guitar as it is on the piano. There are, for example, three different finger shapes for the minor 6th depending upon which strings you use and whether or not you play on adjacent strings. Smaller intervals are governed by different but equally complex contingencies. Closed-position triads are seldom used in any practical way on the guitar but must be explored as initial physical constructs upon which more idiomatically voiced chords can be built. As a result, systems must be devised for the learning of these fundamentals, and the systems need a sufficient number of exercises to be properly internalized. A much longer introductory phase is therefore necessary at the presentation of each new concept and construct. Beyond this, the typical pre-college guitar pedagogy, briefly discussed above, places little emphasis on upper-position orientation (a functional familiarity with notes in the positions of the fretboard more than half-way to the juncture of neck and body of the instrument), general fretboard orientation or chord formulation. An effective fretboard harmony method will therefore need to begin with basic upper position orientation and exercises designed to map the fretboard for those, probably a majority of potential users, that have not mapped it intuitively.

Though it moves far too quickly and too far for a use in a fretboard course, *Harmony and Ear Training at the Keyboard* does generally follow the pattern of introduction of concepts found in the theory books, i.e., scales, intervals, triads, inversion, chord function, progression, modulation, chromaticism. Further, it does

have a well-balanced practical emphasis. Each harmony is worked through using a three-pronged approach with the examination of the chord in its typical setting, its exploration in figured bass and its use in the harmonization of melodies. Emphasis is also placed on non-notational playing, but judging by the form of exercises he provides, the author does not seem to make special effort to encourage improvisation/experimentation.

A New Approach to Keyboard Harmony (1979) by Allen Brings, Charles Burkhardt, et al has very similar strengths and weaknesses when assessed in this same context. It too has far too little introductory material. It also follows the general pattern of concept introduction moving from single notes to dyads, triads, progressions and so forth, but it has a less integrated approach than is ideal. Figured bass and melody harmonization are presented in separate chapters instead of being integrated as they are in Shumway. The book also goes beyond the scope of a fretboard harmony course in a section on score reading.³² The authors acknowledge, but do not emphasize, improvisation which, like figured bass, is relegated to a separate chapter rather than being integrated as a mode of learning throughout.

Tonal Harmony for the Keyboard (1989) by Gary Wittlich and Deborah Martin is also intended as a workbook for a four-semester program of practical harmony study. It is in two large parts, “Diatonic Harmony” and “Chromatic Harmony.” It is unique among the methods examined in that it begins with a chapter

³² Score reading is not possible on the guitar in nearly the same way as it is on piano or organ because of the physical limits on range, the complicating possibility of playing 75% of the notes on the instrument in at least two locations, the limited modulatory capabilities of the instrument and the highly uneven facility of playing in different keys.

comprised strictly of the discussion of theoretical foundations such as pitch, scale degrees, interval nomenclature, chords, the principles of inversion, voicings, chord function and so on. This seems redundant, and for a fretboard harmony method, the presumption should be that such theoretical information would be the domain of the core theory curriculum.

Chapter 2 is the beginning of the practical section of the book and is framed as “keyboard drills.” It starts with single-note exercises and, like the two previously discussed books, moves through intervals (*four* intervals are introduced in the first exercise), triads of *all* qualities, inversion and major-minor 7th chords all in the course of just forty exercises. After a chapter on melodic elaboration, chord progression is introduced beginning with the I – V – I pattern followed by the I – IV – V – I pattern and then by the “prolongation” of these patterns, through which the other diatonic harmonies are introduced. Improvisation is always present. The final section of each chapter is dedicated to improvisation and melody harmonization as culminating activities. Figured bass, however, is presented separately as it is in Brings and Burkhart.

Part II, “Chromatic Harmony,” deals with secondary dominants, borrowed chords, Neapolitan and Augmented 6th chords and extended triads. Modulation is also dealt with soundly, first being examined after the discussion of secondary dominants (“modulation to near-related keys”) and then revisited after the Augmented 6th exercises (“modulation to far-related keys”). The scope of fretboard harmony would likely not permit such a detailed exploration of the topic.

Tonal Harmony for the Keyboard is the most recently published of the methods examined and seems intentionally different than the others. It attempts to integrate improvisation thoroughly and avoids a glossary style of chord introduction depending instead on the concept of prolongation to introduce new chords and chord functions. It also places a stronger emphasis on idiomatic keyboard styles than found in the other books. Its scope is appropriate for fretboard harmony but the amount of introductory material it provides is insufficient. It also eschews formal exploration of scales, relegating them to an appendix. It is ultimately imbalanced by its deliberate de-emphasis of figured bass realization while prescribing harmonization of melodies at the end of each section. Beyond its determined uniqueness, it exhibits the same basic outlines of presentation - single notes followed by double notes, triads, progressions, modulation, etc. - without significant deviation.

Despite some quirks in its form, oddities in its nomenclature and its massive size, *Creative Keyboard Musicianship* (1975) by Ruth and Norman Lloyd is in some ways the best model for a fretboard harmony method among the keyboard methods discussed here. It is 326 pages in length, in three parts and eighteen chapters. Part I is a twenty-page introduction to improvisation, Part II a 110 page series of exercises in intervals, scales and chords and Part III an almost 200 page section with exercises on traditional harmony. As its title suggests, the text features a considerable emphasis on improvisation.

Part I is designed to encourage open improvisation within limited tactile boundaries. This specifically entails improvisation on the black keys, then on the white

keys using five-finger patterns.³³ Chapter 3 of *Creative Keyboard Musicianship* is the beginning of its Part II. Here, there is a quirk in form where instead of presenting the usual sequence of single notes followed by scales, intervals and triads, the authors continue the improvisation work of Part I, now with more materials added to delimit the process. Semitones and their manifestation are covered here, for example, as melodic embellishment, as chromatic neighbour tones and in chromatic scales. This same process continues with the whole tone and major third explored as constituent parts of the whole-tone scale.

Then, in Chapter 5, the book seems to reset at the beginning and while certainly not abandoning the imperative of improvisation, the authors finally begin the traditional sequence of introduction of materials. Scales are presented: first, major, then natural, harmonic and melodic minors in a highly logical and graduated process. Adjustment for the scope of a course in fretboard harmony would require the omission of natural and melodic minor forms preserving curricular space for those forms - major and harmonic minor - which are more pertinent to harmony.

Intervals are presented next in a logical progression from consonant to dissonant and, after the initial introduction of the octave, in inversion pairings: P5th/P4th, major 3rd/minor 6th, etc. Triads, major, minor, diminished and then augmented, are presented next and followed by triad inversion. Chapter 8 introduces 7th and 9th chords with inversions. Then, logically, figured bass appears in Chapter 9, though its initial

³³ It would be relatively simple to create a section in a fretboard harmony method that is similarly designed purely for idiomatic experimentation and discovery but suited to the particularities of the fretboard. Such a section probably must, however desirable, be ultimately forgone. To emulate this in a fretboard harmony method would lend too heavy a portion of time to something outside core issues and topics, especially given the typical allotment of college resources for this course.

introduction is at too complex a level. The authors prescribe a four-note passage as the first exercise. It will be advisable in fretboard harmony to start with one-note experimentations, finding different voicings for single chords presented in figured bass format.

Finally, in Chapter 10, the study of progressions begins with the simple I – IV – V progression and cadences. Chapter 11 treats harmonization of melodies with I, IV, V and V7. The next chapters follow a progressive introduction of chords based on accepted tonal hierarchy; Chapter 12 introduces the chord of ii, Chapter 13 the chord of vi and Chapter 14 the chord of vii⁰. Modulation by common chord, common tone and diminished 7th chord follows.

Chapter 18 deals with Augmented 6th and Neapolitan harmonies. It is perplexing that secondary dominants are never discussed in a systematic way, V7of V, for example, being labeled as II7, a major-mode supertonic with added seventh. Similar idiosyncrasy is seen in the case of the Italian 6th which is given as “the first inversion of a minor sub-dominant with a raised root.”³⁴ This is a convoluted description, even given its sub-dominant function. Still, the introduction of harmonies in *Creative Keyboard Musicianship*, one per chapter over five chapters and 100 pages, is extremely thorough and is almost in direct concordance with the accepted progression of order described both in Aldwell and Schachter and in Benward and White.

³⁴ R. and N. Lloyd, *Creative Keyboard Musicianship* (New York: Dodd, Mead, 1975).

Creative Keyboard Musicianship succeeds despite some oddities. The exercises provided are not only more numerous by far than in the other books - it is the longest book among the ones examined - but are also more varied, more inventive and more interesting. Similarly to those given in Aldwell and Schachter, they provide excellent, effective models for the type and ordering of exercises in a fretboard harmony method. Take, for example, the exercises given at the introduction of the sub-dominant harmony (pp. 157-158). The first task is simply to find and play IV chords in various major and minor keys. Next, the authors provide numerous I – IV – I progressions as models of voicing and ask the student to transpose them. Following this, models from the literature are provided for playing examples. Finally, an exercise in improvisation on typical pianistic textures and using the IV harmony is given. In the discussion of the Italian 6th, a similarly progressive and varied series of exercises is given (pp.290-291). The chord is first shown in examples from the literature. Next a simple construction exercise is given with bass notes provided as the starting point. Following this, exercises in resolution of the chord and transposition of the progression are prescribed. The section concludes with figured bass and melody harmonizations using the Italian 6th. Like in Aldwell and Schachter, the variety of exercises addresses different learning strategies, provides a progressive level of challenge and makes a creative component imperative.

Conclusions

In light of all these examinations a fretboard harmony method can take form. It should follow the consensus methodology of the theory texts and most of the keyboard texts but should presume a full-year course of study, the second term starting

immediately after the introduction of figured bass. It will need to presume some experience in the user yet it must have a comprehensive section on fretboard geography and orientation. More exercises will be needed for the introduction of basic scales, triads and chords than are found in any of the keyboard harmony manuals due to the asymmetrical, non-literal and somewhat labyrinthine nature of the fretboard. Improvisation can certainly be effectively incorporated as a learning method which will address a different learning style and open avenues of discovery. Fretboard harmony should therefore emphasize experimentation, improvisation and the training of the ear as arbiter of musical results. Fretboard harmony should also prescribe regular recourse to figured bass and melody harmonization as mechanisms for the inculcation of new chords or progressions, rather than segregating these tools. It should provide numerous clear and creative exercises at all points of introduction, taking as best examples those given in R. and N. Lloyd's *Creative Keyboard Musicianship*. A fretboard harmony method cannot be as lengthy as most keyboard manuals but must follow the accepted sequencing of materials while omitting any non-essential concepts.

Following is the basic layout for a fretboard harmony method based on this exploration. Those sections marked with a superscript symbol “^ϕ” are particular to fretboard harmony and would not be found in typical theory or keyboard harmony books.

Chapter I

Fretboard Geography and Orientation †

Chapter II

Single-note reading in higher positions, note recognition †

Chapter III

Diatonic Scales

Major scale cells †

Harmonic Minor scale cells †

Chapter IV

Intervals

P8

P4 and P5

maj. 3rd and min. 6th

min. 3rd and maj. 6th

Scales in 3^{rds} and 6^{ths} †

10^{ths} †

maj. 2nd and min. 7th

min. 2nd and maj. 7th

tritone

Chapter V

Chords

Major triads and voicings, cardinal and dilated forms, logical derivation of common chords^{‡35}

Minor triads and voicings, cardinal and dilated forms, logical derivation of common chords[‡]

Barre chords and cadence formulas[‡]

Diminished triads and voicings, cardinal and dilated forms[‡]

Augmented triads and voicings, cardinal and dilated forms[‡]

First inversion of triads and voicing[‡]

Scales in Parallel first-inversion triads[‡]

Second-inversion triads and voicing[‡]

Derivation of chord voicings[‡]

Dominant 7th chords

Inversion of dominant 7th chords

Diminished 7th chords

Half-diminished 7th chords

Derivation of alternate chord forms[‡]

Chapter VI

Figured Bass

³⁵ The terms “cardinal” and “dilated” are explained in detail on pp. 98-100.

Chapter VII**Chord Progression Part I**

V – I and V7– I resolutions

The IV chord

I – IV progressions

Plagal cadences

IV – V progressions

Progressions using I, IV and V

Chapter VIII**Harmonization of Melodies****Chapter IX****Chord Progression Part II and III**

The I₆/4 chord

Supertonic chord

Sub-mediante chord

Leading-tone chord

Mediant chord

Secondary dominants

Chapter X**Modulation**

Chapter XIChromaticism

Augmented 6th formulations

Neapolitan 6th formulations

Chapter III

Method Book

III-i Fretboard Geography and Orientation

It is a critical first step that the fretboard practitioner develops fluency in navigating the fretboard and that this fluency is based on a clear understanding of the fretboard's geography, layout and inherent logic. In this first section we will look at some fundamental concepts and perform some exercises needed to achieve this fluency and understanding.

The most rudimentary notion to understand is that the frets are set on the instrument in a series of semitones, the smallest increment of pitch division in Western music. Given that the open strings are pitched as shown in figure 1, it follows that fret I on ① is an f', fret II an f#' and so on.³⁶

- ① = e'' (sounds as e')
- ② = b' (sounds as b)
- ③ = g' (sounds as g)
- ④ = d' (sounds as d)
- ⑤ = a (sounds as A)
- ⑥ = e (sounds as E)

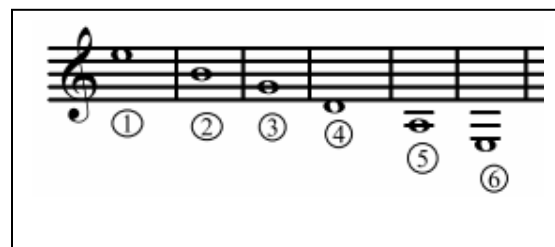


Figure 1. Pitches of the open strings of the guitar.

The next logical task is to examine the layout of natural notes in the first

³⁶ This book will follow the convention of enumerating string numbers with Arabic numerals in circles to distinguish these from finger indications or other notations. It will also follow the convention of using Roman numerals to indicate fret numbers and fretboard positions.

octave of the fretboard, that is, on the first twelve frets (see fig. 2). It is useful to observe that there are natural notes across all strings *only* on frets V, X and XII, with fret XII marking exactly the octave higher than the open string. (An interesting corollary is that fret XI alone has *no natural note* on any string.) The frets with all natural notes can serve as anchoring landmarks for referencing notes on the intervening frets; for example, notes on VII will be a whole tone higher than those on V and notes on XI will be a semitone lower than notes on XII, or from the opposite viewpoint, to find f#’ on ② take as a starting point the e’ on ② and move one whole tone, or two frets, higher, etc.³⁷

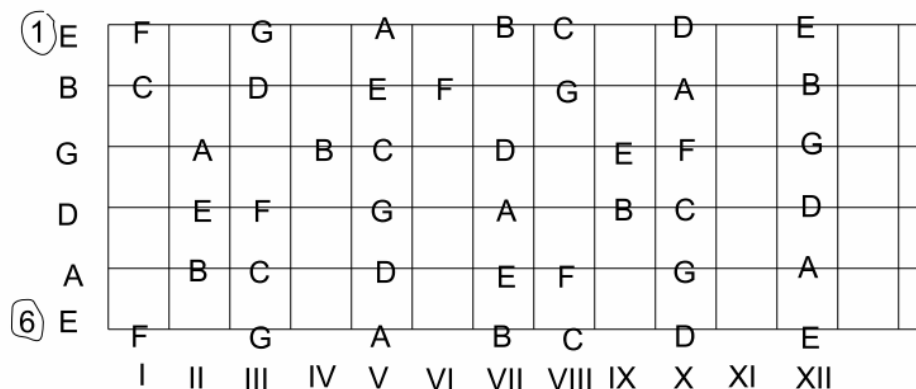



Figure 2. The guitar fretboard showing the positions of all natural notes within the first octave.

AS YOU EMBARK ON THE EXERCISES, REMEMBER THAT THE **MAINTENANCE OF A STEADY PULSE** IS ESSENTIAL EVEN IN THE ABSENCE OF A PRESCRIBED RHYTHM. ONLY IN THIS WAY WILL THE EXERCISES BE OF REAL AND LASTING VALUE. THE TEMPO AT WHICH THE EXERCISES ARE PERFORMED IS NOT INITIALLY RELEVANT AND SHOULD INCREASE NATURALLY AS FLUENCY IS ATTAINED. AIM FOR ACCURACY, CONTINUITY AND A STEADY PULSE.

³⁷ From this point forward in the book, pitches will be referred to by their notation on the standard guitar treble clef staff if necessary and without specific reference to their exact octave disposition.

Ex. 1a. Play all the natural notes in order from the open string to fret XII for each string, starting with ①. Play ascending and descending on each string and name the notes as you proceed.

Ex. 1b. Perform Ex.1 in the rhythm  .

Ex. 1c. Create two of your own rhythmic patterns to apply to the same exercise.

Ex. 2a. Play all of the natural notes in first (I) position³⁸ ascending and descending, in quarter notes and naming the notes as you proceed.

Ex. 2b. Create two of your own rhythmic patterns to apply to Ex. 2.

Ex. 3a. Play all the natural notes in V position (IV position for ②) ascending and descending, in quarter notes and naming the notes as you proceed.

Ex. 3b. Create two of your own rhythmic patterns to apply to Ex. 3.

Ex. 4. Perform Exs. 3 and 3b in VII position and then over the five frets of VIII and IX position.


It is essential to the understanding of fretboard geography that, in most cases,

³⁸ “Positions” on the guitar are four-fret segments of the fretboard named by the first fret in the sequence. Thus first position is comprised of frets one through four. Typically, the four left-hand fingers are assigned to the consecutive frets giving a logical left-hand positioning. In first position, all notes on fret one would be played with finger one (index), all notes on fret two would be played with finger two (middle), etc. Henceforth, first position is indicated in the text as “I position,” second position as “II position,” etc.

there is more than one location for given pitches. Figure 3 shows the number of occurrences of each of the notes within the first thirteen frets of the guitar. Note that there are in fact three occurrences of a majority of the notes. Fourth space E, for example, can be played using ① open, or by fretting ② at V or by fretting ③ at IX.³⁹



Figure 3. Note occurrences in the first thirteen frets.

Ex. 5. Starting on ①, play E-F-G in I position. Continue by playing the exact notes on ②, then on ③ maintaining the rhythm . Repeat the process starting on ② (B-C-D) then on ③ (G-A-B) and finally on ④ (D-E-F).

III-ii Single-String Exercises

As part of thorough preparation for fretboard practice it is necessary to develop a strong working knowledge of the location of notes. Playing single-note exercises similar to those traditionally used by jazz players is an effective way of develop this knowledge. Following are a series of exercises which require the playing of extended single-note melodic patterns in various positions on the instrument. They should be played fluently while naming the notes.

³⁹ Mary Jo Disler, "Fretboard Mysteries Revealed: Or, a Guided Tour for the Perplexed Reader" *Soundboard* 22.2 (1995): 13-21. The discussion of fretboard geography to this point is in part adapted from Disler's extensive article.

Ex. 6. Play the following in I and then in IV-V position naming the notes as you proceed.

Musical notation for Exercise 6, consisting of three staves of music in treble clef, 4/4 time signature. The first staff contains a sequence of eighth notes: C4, D4, E4, F4, G4, A4, B4, C5, B4, A4, G4, F4, E4, D4, C4. The second staff contains a sequence of eighth notes: C4, D4, E4, F4, G4, A4, B4, C5, B4, A4, G4, F4, E4, D4, C4. The third staff contains a sequence of eighth notes: C4, D4, E4, F4, G4, A4, B4, C5, B4, A4, G4, F4, E4, D4, C4.

Ex. 7. Play the following in IV-V and then in VII positions naming the notes as you proceed.

Musical notation for Exercise 7, consisting of three staves of music in treble clef, 4/4 time signature. The first staff contains a sequence of eighth notes: C4, D4, E4, F4, G4, A4, B4, C5, B4, A4, G4, F4, E4, D4, C4. The second staff contains a sequence of eighth notes: C4, D4, E4, F4, G4, A4, B4, C5, B4, A4, G4, F4, E4, D4, C4. The third staff contains a sequence of eighth notes: C4, D4, E4, F4, G4, A4, B4, C5, B4, A4, G4, F4, E4, D4, C4.

Ex. 8. Play the following in II and then in VII position naming the notes as you proceed.

The musical notation for Exercise 8 consists of three staves in G major (one sharp) and 6/8 time. The first staff begins with a treble clef and a key signature of one sharp (F#). It contains two measures of eighth-note patterns: the first measure has notes G4, A4, B4, A4, G4, F#4, E4, D4, and the second measure has notes C4, D4, E4, F#4, G4, A4, B4, A4, G4. The second staff continues with two measures of eighth-note patterns: the first measure has notes F#4, E4, D4, C4, B3, A3, G3, F#3, and the second measure has notes E3, D3, C3, B2, A2, G2, F#2, E2. The third staff contains two measures of eighth-note patterns: the first measure has notes D3, C3, B2, A2, G2, F#2, E2, D2, and the second measure has notes C3, B2, A2, G2, F#2, E2, D2, C2. The piece concludes with a whole note chord of G2, B2, D3, E3, F#3, G3.

Ex. 9. Play the following in VII position naming the notes as you proceed.

The musical notation for Exercise 9 consists of three staves in G major (one sharp) and 6/8 time. The first staff begins with a treble clef and a key signature of one sharp (F#). It contains two measures of eighth-note patterns: the first measure has notes G4, A4, B4, A4, G4, F#4, E4, D4, and the second measure has notes C4, D4, E4, F#4, G4, A4, B4, A4, G4. The second staff continues with two measures of eighth-note patterns: the first measure has notes F#4, E4, D4, C4, B3, A3, G3, F#3, and the second measure has notes E3, D3, C3, B2, A2, G2, F#2, E2. The third staff contains two measures of eighth-note patterns: the first measure has notes D3, C3, B2, A2, G2, F#2, E2, D2, and the second measure has notes C3, B2, A2, G2, F#2, E2, D2, C2. The piece concludes with a whole note chord of G2, B2, D3, E3, F#3, G3.

Ex. 10. Play the following in II position naming the notes as you proceed.

Exercise 10 consists of three staves of music in G major (one sharp) and 3/4 time. The first staff contains 8 measures, the second 8 measures, and the third 8 measures, ending with a double bar line. The notes are: Staff 1: G4, A4, B4, A4, G4, F4, E4, D4, C4, B2, A2, G2, F2, E2, D2, C2, B1, A1, G1. Staff 2: G2, A2, B2, A2, G2, F2, E2, D2, C2, B1, A1, G1, F1, E1, D1, C1, B0, A0, G0. Staff 3: G0, A0, B0, A0, G0, F0, E0, D0, C0, B-1, A-1, G-1, F-1, E-1, D-1, C-1, B-2, A-2, G-2.

Ex. 11. Play the following in VI-VII position naming the notes as you proceed.

Exercise 11 consists of three staves of music in G major (one sharp) and 6/8 time. The first staff contains 8 measures, the second 8 measures, and the third 8 measures, ending with a double bar line. The notes are: Staff 1: G4, A4, B4, A4, G4, F4, E4, D4, C4, B3, A3, G3, F3, E3, D3, C3, B2, A2, G2. Staff 2: G2, A2, B2, A2, G2, F2, E2, D2, C2, B1, A1, G1, F1, E1, D1, C1, B0, A0, G0. Staff 3: G0, A0, B0, A0, G0, F0, E0, D0, C0, B-1, A-1, G-1, F-1, E-1, D-1, C-1, B-2, A-2, G-2.

Ex. 12. Play the following in I-II position naming the notes as you proceed.

Exercise 12 consists of two staves of music in G major (one sharp) and 3/4 time. The first staff contains 8 measures, and the second 8 measures, ending with a double bar line. The notes are: Staff 1: G4, A4, B4, A4, G4, F4, E4, D4, C4, B3, A3, G3, F3, E3, D3, C3, B2, A2, G2. Staff 2: G2, A2, B2, A2, G2, F2, E2, D2, C2, B1, A1, G1, F1, E1, D1, C1, B0, A0, G0.

Ex. 13. Play the following in IV-V position naming the notes as you proceed.

Ex. 14. Play the following in IX position naming the notes as you proceed.

Ex. 15. Play the following in VIII-IX position naming the notes as you proceed.

Ex. 16. Play the following in V position naming the notes as you proceed.

Exercise 16 consists of three staves of music in treble clef, 3/8 time, and B-flat major. The first staff contains six measures of eighth-note chords. The second staff contains six measures of eighth-note chords. The third staff contains six measures of eighth-note chords, ending with a double bar line.

Ex. 17. Play the following in V position naming the notes as you proceed.

Exercise 17 consists of three staves of music in treble clef, 3/4 time, and B-flat major. The first staff contains six measures of eighth-note chords. The second staff contains six measures of eighth-note chords. The third staff contains six measures of eighth-note chords, ending with a double bar line.

Ex. 18. Play the following in IV-V position naming the notes as you proceed.

Exercise 18 consists of three staves of music in treble clef, 3/4 time, and B-flat major. The first staff contains six measures of eighth-note chords. The second staff contains six measures of eighth-note chords. The third staff contains six measures of eighth-note chords, ending with a double bar line.

Ex. 19. Play the following in IX-X position naming the notes as you proceed.

Musical notation for Exercise 19, consisting of two staves of music in G major, 4/4 time. The first staff contains two measures of eighth-note patterns. The second staff contains two measures of eighth-note patterns, ending with a whole rest.

Ex. 20. Play the following in II position naming the notes as you proceed.

Musical notation for Exercise 20, consisting of two staves of music in D major, 6/8 time. The first staff contains two measures of eighth-note patterns. The second staff contains two measures of eighth-note patterns.

Ex. 21. Play the following in VII position, naming the notes as you proceed.

Musical notation for Exercise 21, consisting of three staves of music in D major, 2/4 time. Each staff contains two measures of eighth-note patterns.

III-iii: Diatonic Scales

The diatonic major and minor scales are a theoretical distillation of long-established harmonic practice in Western music. They are the essence of almost all music composed approximately between 1600 and 1850 and beyond, and they are an indispensable element of fretboard practice. We begin our study of fretboard harmony using different major and harmonic minor *scale cells*. Scale cells are defined as single-position, one-octave scales played using no open strings. Because they do not use open strings, they are, in guitar parlance, “movable,” i.e. they are transposable simply by starting the finger pattern in a new position. We will perform several exercises manipulating these cells to establish a foundation of fretboard practice using single notes, before moving on to intervals, triads, chords and more advanced elements.

Major Scale Cells

Cell No.1

Play the following major scale cell ascending and descending.



Ex. 22. Play scale cell no.1 transposed to C+, D+, E_b+ F+ and G+⁴⁰ ascending and descending, naming the scale degrees as you proceed, i.e. ‘one, two, three’, etc.

⁴⁰ This book will follow the convention of abbreviating the key and mode where C+ indicates C major and C- indicates C minor.

Ex. 23. Using scale cell no.1, play the indicated scale degrees in C+.⁴¹

The first staff contains two measures of eighth notes with scale degrees: 1 2 3 1 2 3 4 2, 3 4 5 6 5, 6 5 4 6 5 4 3 5, 4 5 6 7 8. The second staff contains two measures of eighth notes with scale degrees: 8 7 6 8 7 6 5 7, 6 5 4 6 5 5, 4 3 2 4 3 2 1 3, 4 5 6 7 8.

Ex. 24. Transpose Ex. 23 into D \flat +, F+ and E+ using scale cell no.1.

Ex. 25. Repeat Ex. 24 and name the pitches or solfege as you proceed.

Ex. 26. Using scale cell no.1, play the indicated scale degrees in C+.

The first staff contains two measures of eighth notes with scale degrees: 1 2 1 3 1 4 1 5, 1 6 1 7 8. The second staff contains two measures of eighth notes with scale degrees: 8 7 8 6 8 5 8 4, 8 3 8 2 1.

Ex. 27. Play Ex. 26 with all eighth-note pairs changed to dotted-eighth and sixteenth pairs. Transpose to D+, B+ and G+ and name the pitches or solfege as you proceed.

⁴¹ The numbers with circumflex accent indicate scale degrees; the figure 5̂, for example, indicates the fifth degree of the scale.

Ex. 28. Continue the following patterns using scale cell no.1 and name the scale degrees as you proceed.⁴²

(a)



(b)



Ex. 29. Create similar patterns using scale cell no.1.

Ex. 30. Using scale cell no.1 play the following “by ear”

- a) *Mary Had a Little Lamb in D+*
- b) *Twinkle, Twinkle Little Star in E+*
- c) *Michael, Row Your Boat Ashore in B+*

Major Scale Cells Nos. 2, 3 and 4

Play the following scale cells ascending and descending.

No.2



No.3



⁴² Ruth and Norman Lloyd, *Creative Keyboard Musicianship* (New York: Dodd, Mead, 1975). The pattern-continuation type exercise is adapted from models in Chapter IV.

No.4

Ex. 31. Play scale cell no.2 transposed to F⁺, A⁺, B⁺ and B^{b+}, ascending and descending, naming the scale degrees as you proceed.

Ex. 32. Play scale cell no.3 transposed to F⁺, G⁺, E^{b+} and E⁺ ascending and descending, naming the scale degrees as you proceed.

Ex. 33. Play scale cell no.4 transposed to A⁺, B⁺, E^{b+} and E⁺, ascending and descending, naming the scale degrees as you proceed.

Ex. 34. Play the scale degrees indicated in the prescribed rhythm using scale cells nos. 2, 3 and 4 and naming the pitches as you proceed.



Ex. 35. Repeat Ex. 34 choosing the appropriate scale cell for the keys of D+, F+, A+, G+ and B \flat +.⁴³

Ex. 36. Continue the following pattern using the appropriate scale cell.



Ex. 37. Transpose Ex. 36 to F+, G+, A \flat + and E \flat + choosing the appropriate cell in each case.

Ex. 38. Repeat Ex. 37 naming the pitches as you proceed.

Ex. 39. Create a pattern in the manner of Ex. 36 using scale cell no.3.

Ex. 40. Play the tunes “London Bridge” and “This Old Man” by ear, using each of scale cells nos. 2, 3, and 4.

Ex. 41. Repeat Ex. 40 naming the scale degrees as you proceed.

⁴³ The appropriate cell will be one which allows for a comfortable fretboard positioning, approximately in the III to VII position range - neither too high nor too low - in the required key.

Harmonic Minor Scales

The theory of the common-practice period typically identifies harmonic, melodic and natural forms of the minor mode. Since we are principally concerned with harmony here, the exercises will mostly use the harmonic minor form as the basis of exploration.

Harmonic Minor Scale Cells Nos. 1, 2, 3, and 4

No.1



No.2



No.3



No.4



Ex. 42. Using either harmonic minor scale cell no.1 or no.2 to achieve appropriate positioning, play the following harmonic minor scales, ascending and descending and name the pitches or solfege as you proceed: F#, D-, C#, A-, G#-.

Ex. 43. Using both harmonic minor scale cells no.3 and no.4, play all the scales F#- through A- and name the pitches or solfege as you proceed.

Ex. 44. Using harmonic minor scale cell no.1 and no.2 and the keys given in Ex. 42, play the following patterns of scale degrees and name the pitches or solfege as you proceed.

- a) $\hat{3}-\hat{1}-\hat{5}-\hat{4}-\hat{3}-\hat{2}-\hat{1}-\hat{2}-\hat{1}$
- b) $\hat{8}-\hat{5}-\hat{6}-\hat{5}-\hat{7}-\hat{8}$
- c) $\hat{5}-\hat{6}-\hat{1}-\hat{7}-\hat{1}$
- d) $\hat{1}-\hat{5}-\hat{3}-\hat{1}-\hat{7}-\hat{1}-\hat{2}-\hat{3}$
- e) $\hat{1}-\hat{7}-\hat{1}-\hat{2}-\hat{3}-\hat{4}-\hat{5}-\hat{6}-\hat{5}-\hat{4}-\hat{3}-\hat{2}-\hat{1}$

Ex. 45. Adapt harmonic minor scale cells no.1 and no.2 to play the patterns given in Ex. 44 in the natural minor. Use the same keys and name the pitches or solfege as you proceed.

Ex. 46. Continue the following pattern using harmonic minor scale cells no.3 and no.4.



Ex. 47. Play Ex. 46 with harmonic minor scale cell no.3 adapted to natural minor.

Ex. 48. Transpose Ex. 46 to A- and B- using harmonic minor scale cell no.4 and to F- and E- using harmonic minor scale cell no.3 and name the pitches or solfege as you proceed.

Ex. 49. Repeat Ex. 48 naming the scale degrees as you play.

Ex. 50. Play the harmonic minor scales of C-, F-, E-, B \flat - and G#- using the rhythmic patterns



Use at least two of the harmonic minor scale cells for each key.

Ex. 51. Transpose the following to three other keys using harmonic minor scale cells nos. 1-4.

Adapted from J.S. Bach

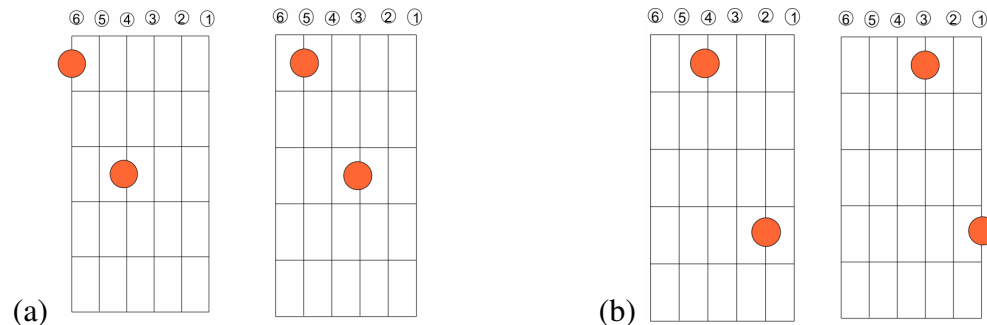


III-iv: Intervals

A fundamental theoretical and practical facility with intervals is the next logical step in developing harmonic understanding and effective fretboard practice. Intervals are the building blocks of chords, and a physical correspondence between chord and interval helps shape a deeper understanding of the fretboard. Following are several explorations and exercises to help build these skills. Intervals are presented and explored in inversion pairings.

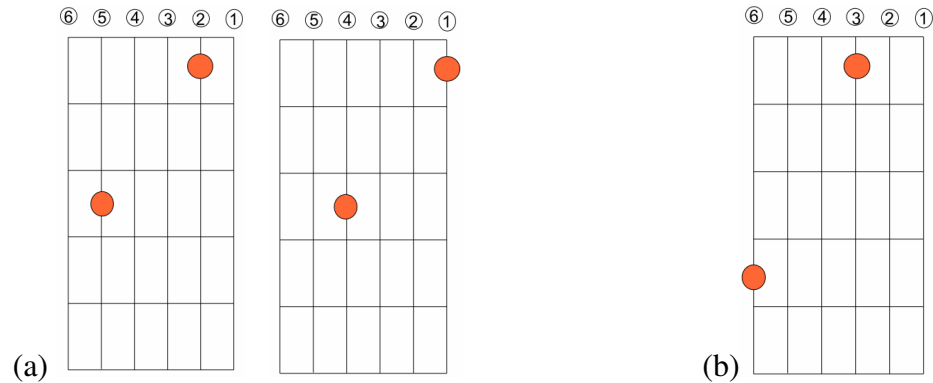
The Perfect Octave

If we consider for the moment the single-note constructs we have explored to this point to be perfect unisons, this leads us, by inversion pairing, to the perfect octave as our first true interval. Because the octave is large, the formulas for playing this interval on the guitar are mostly non-adjacent string dispositions. There are three groupings of octaves on the fretboard, two of which do not make use of open strings and are therefore ‘movable’ or transposable. The first grouping comprises the configurations with one intervening string. This is to say that octaves can be found on ⑥ - ④, ⑤ - ③, ④ - ② and ③ - ①. Within this grouping there are two shape subgroups; one shape is shared by the ⑥ - ④ and ⑤ - ③ configurations (a) and the other shape is shared by the ④ - ② and ③ - ① configuration (b):



Experiment with these configurations taking note of the pitches and the shapes.

The second grouping comprises the configurations with two intervening strings: ⑥ - ③, ⑤ - ②, and ④ - ①. Within this grouping as well there are two shape subgroups; one shape is shared by the ⑤ - ② and ④ - ① configurations (a) and the other shape is unique to the ⑥ - ③ configuration (b):



Experiment also with these configurations taking note once again of the pitches and the shapes.

The third option for playing octaves involves the use of open strings for the bottom note of the interval. There are numerous possibilities here. In V position, for example, the open ⑥ can serve as the lower note E while ⑤ at VII provides the higher note. Similarly, ⑤ open serves as the lower note A while ④ at VII provides the higher note. A number of similar possibilities exist in II position (although these are mostly the logical end point arrived at upon descending chromatically using the shapes in the first and second octave groupings).

Experiment to find perfect octaves using open strings for the lower note. Don't forget that one possibility even exists using ② open.

Ex. 52. Play the following doubled in octaves above the written notes. Remain in V-VI position.

“Sakura” - Japanese Folk song

Ex. 53. Repeat Ex. 52 (a) in II-III position and (b) in VI-VII position.

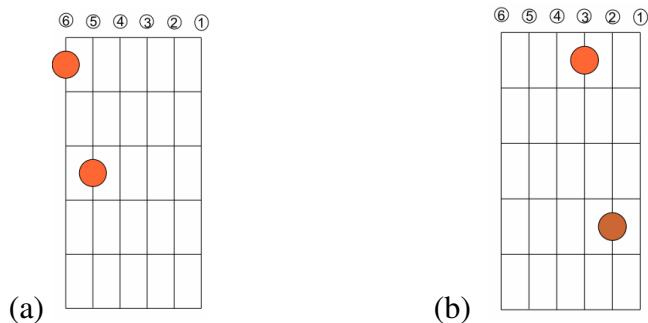
Ex. 54. Transpose Ex. 52 into A- and play it (a) entirely in V position and (b) entirely in VII position.

Ex. 55. Play the following doubled in octaves above the written notes. Remain in I-II position.

Adapted from L. van Beethoven

The Perfect 5th

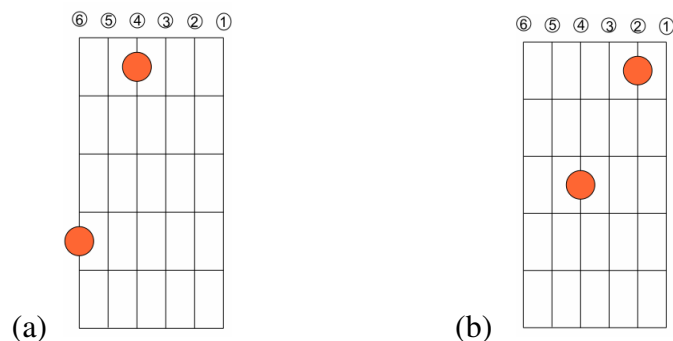
Like the perfect octave, the perfect 5th is playable in three different groupings. The first grouping is with the two notes on adjacent strings. These are almost all identically shaped: Configurations ⑥-⑤, ⑤-④, ④-③ and ②-① share one shape (a) with the exception being the ③ - ② configuration (b):



This perfect 5th grouping is used very widely in rock and heavy metal guitar accompanying and melodic playing where, in diametric opposition to common-practice music, parallel perfect 5^{ths} are ubiquitous.

Experiment to find perfect 5^{ths} across the fretboard on adjacent strings taking note of the pitches and shapes.

The second grouping of perfect 5^{ths} have one intervening string, with ⑥-④ and ⑤-③ sharing one shape (a) and ④-② and ③-① sharing another shape (b):



The third grouping of perfect 5^{ths} involves the use of an open lower note.

Experiment to find perfect 5^{ths} across the fretboard using the configuration with an intervening string and the configuration using an open lower note.

Ex. 56. Play the scales of C+ and A+ in IV-V position, doubled in parallel perfect 5^{ths} through one octave.

E.g.



Ex. 57. Play the scales of C+ and A+ entirely in I position, doubled in parallel perfect 5^{ths} through one octave.

Ex. 58. Harmonize the following melody in parallel perfect 5^{ths} entirely in V position.

God Save the Queen

Perfect 5^{ths} are found above all notes except $\hat{7}$ in the major scale and above $\hat{1}$, $\hat{4}$, $\hat{5}$ and $\hat{6}$ in the harmonic minor scale.

Ex. 59. Play all the perfect 5^{ths} found in

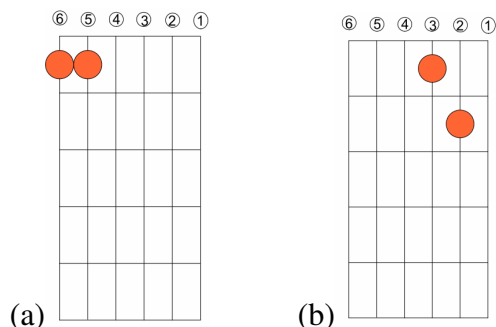
(a) the following major keys: C+, A+, E+

(b) the following harmonic minor keys: D-, B-, G-

The Perfect 4th

The perfect 4th is found in two classes on the fretboard. Because it is a smaller interval, the fretted version of the interval is found only on adjacent strings.

The same shape (a) is used for all adjacent string combinations with exception of ③-②, which uses another shape (b):



The second class of perfect 4th involves the use of an open lower note. Because the guitar is tuned almost all in fourths, the perfect 4^{ths} in this class are primarily comprised of two open notes. The one exception again is ③-② which, as we have seen in fig. 1, are tuned in a major 3rd. This difference accounts for all the exceptional cases we have seen in all interval shapes examined to this point and those we will encounter as we continue.

Experiment to find perfect 4^{ths} across the fretboard using the adjacent string configurations and those using an open lower note.

Ex. 60. Continue the following exercise converting perfect 5^{ths} to perfect 4^{ths} through one octave. Play within I-III positions and do not use open strings.



Ex. 61. Continue the following playing no note lower than on fret II and none higher than on fret VI.



Ex. 62. Continue the following pattern converting perfect 5^{ths} to perfect 4^{ths} until the specified end point.

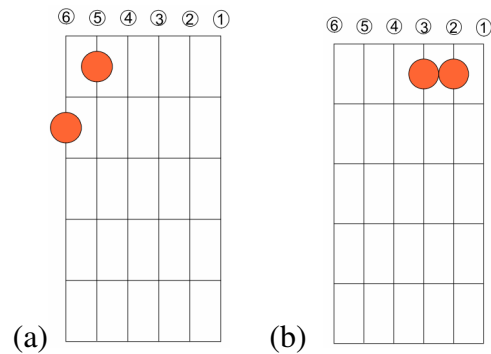


Ex. 63. Play the following melody doubled at the perfect 4th below the given note.



The Major 3rd

The major 3rd is a smaller interval and so is only playable on adjacent strings. This will be obvious once we consider anew that the guitar is tuned primarily in perfect 4^{ths}. All configurations share one shape (a) with the exception of ③-② which are tuned in a major 3rd and therefore use another shape (b):



It should also be clear that there is one other possible major third available on the fretboard by playing ③-② open. Major 3^{rds} then can be played on any two adjacent frets on any two adjacent strings using this configuration with the exception of ③-②.

Experiment to find major 3^{rds} using the available string configurations across the fretboard.

Ex. 64. Continue the following pattern staying within frets III-VIII.

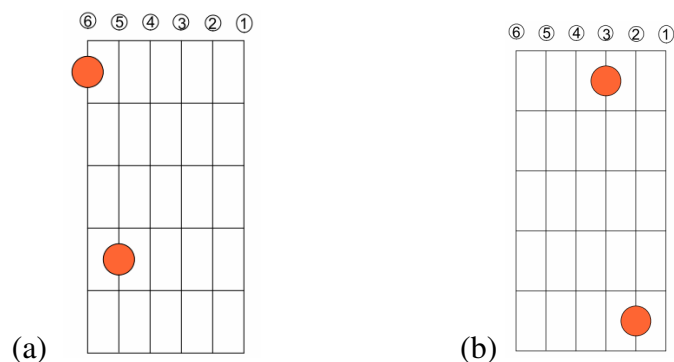


Ex. 65. Play "London Bridge" doubled in parallel major 3^{rds} above the given notes in I-II position.

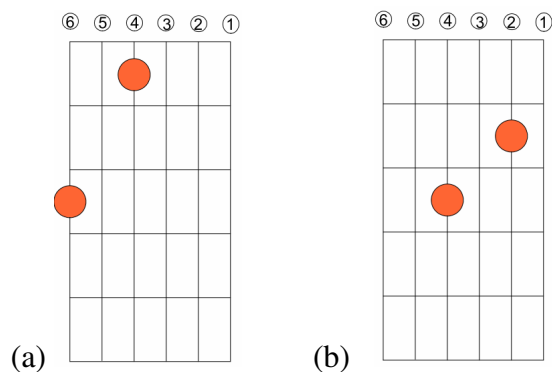
Ex. 66. Play the one-octave scale of D+ in parallel major 3rds above the principal note in III-IV position.

The Minor 6th

The minor 6th is the inversion of the major 3rd. As a larger interval it may be played in two different classes, on adjacent strings and with an intervening string, in the same way that we have seen above with the perfect octave. In almost every case the adjacent string configurations use one shape (a) with the exception, as we by now expect, of ③-②, which uses a different shape (b):



There are two intervening string shapes, one for ⑥-④ and ⑤-③ (a) and one for ④-② and ③-① (b):



Experiment to find minor 6^{ths} across the fretboard in all configurations, noting the shape relationship with the perfect 5th.

Ex. 67a. Play the scale of D+ doubled in minor 6^{ths} above the principal note using non-adjacent string configurations.

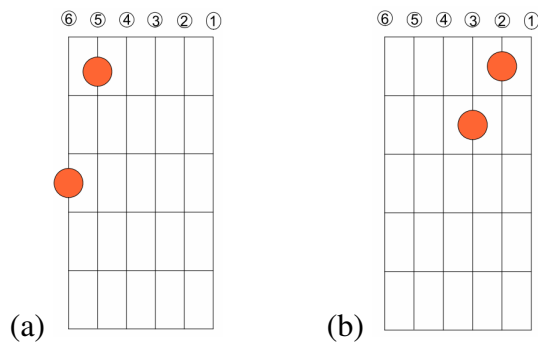
Ex. 67b. Play the scale of D+ doubled in minor 6^{ths} above the principal note using adjacent string configurations.

Ex. 68. Continue the following pattern using both adjacent and non-adjacent configurations of the minor 6th.



The Minor 3rd

The minor 3rd, a small interval, is playable only on adjacent strings of the guitar. The interval is played in one shape (a) with the now familiar exception of the ③-② configuration (b):



Experiment to find minor 3rds across the fretboard in all configurations.

Ex. 69. Continue this pattern staying within VI-IX positions.

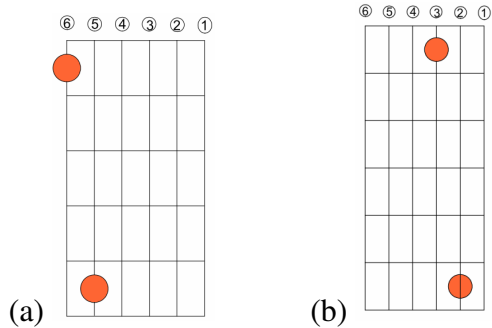


Ex. 70. Play the following melody doubled at the minor 3rd below staying within I-IV positions.



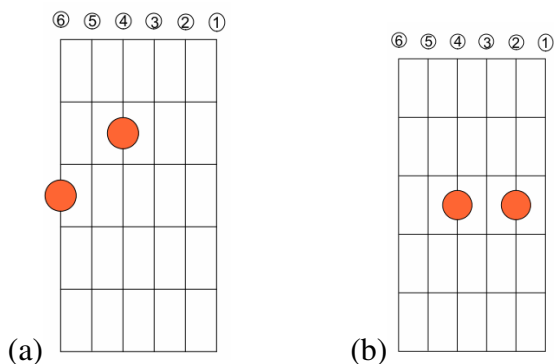
The Major 6th

The major 6th is the inversion of the minor 3rd. As a larger interval, the major 6th exists on the fretboard in two different classes, on adjacent strings and with an intervening string as we have seen above with the minor 6th. In almost every case the adjacent string configurations use one shape (a) with the exception, as we by now expect, of ③-②, which uses a different shape (b):



These formulations are impractical because they exceed the normal four-fret span fretboard position and extend the left hand beyond a secure and balanced posture. We will therefore mostly use the intervening string configurations for this interval. There are two of them, one for $\textcircled{6}$ - $\textcircled{4}$ and $\textcircled{5}$ - $\textcircled{3}$ (a) and one for $\textcircled{4}$ - $\textcircled{2}$ and

$\textcircled{3}$ - $\textcircled{1}$ (b):



Experiment to find major 6^{ths} across the fretboard in all configurations, noting the relationship in shape with the minor 6th.

Ex. 71. Continue this pattern until the specified end point. Create two different fingerings.



Ex. 72. Continue this pattern until playing the lowest F on the fretboard. Create two different fingerings.



Ex. 73. Continue this pattern in which perfect 5^{ths} are converted into major 6^{ths} to the specified end point taking note of the left-hand slur in the pattern.



Scales in 3^{rds} and 6^{ths}

It is common in the guitar repertoire to find passages in parallel 3^{rds} and 6^{ths}. Moreover, it is a fundamental element of fretboard skill development to be fluent in playing this kind of passage. Playing diatonic scales in parallel 3^{rds} and 6^{ths} is therefore instructive and helpful in fretboard practice.

Ex. 74. Play the scale of C+ in parallel 3^{rds} for one octave.

E.g.




Ex. 75. Play the scale of C+ in 6^{ths} for one octave.

E.g.



Ex. 76. Play the scales of C+ in parallel 3^{rds} and 6^{ths} for two octaves and using at least two different fingerings.

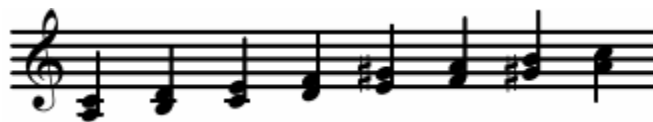
Ex. 77. Play the scales of C+ in parallel 3^{rds} and 6^{ths} for two octaves

imposing the rhythmic pattern  and using at least two different fingerings.

Ex. 78. Create several of your own rhythmic patterns to apply to Ex. 76.

Ex. 79. Play the scale of A- in parallel 3^{rds} for one octave. Note that the raised leading tone will be used for the 3rd above $\hat{5}$ as well as for the bottom note in $\hat{7}$.

E.g.



Ex. 80. Play the scales of A- in parallel 6^{ths} for one octave. Note that the raised leading tone will be used for the 6th below $\hat{5}$ as well as for the top note in $\hat{7}$.

E.g.



Ex. 81. Play the scales of A- in parallel 3^{rds} and 6^{ths} for two octaves.

Ex. 82. Play the scales of A- in parallel 3^{rds} and 6^{ths} for two octaves imposing the rhythmic pattern ♩ ♪ ♪ .

Ex. 83. Create several of your own rhythmic patterns to apply to Ex. 81.

Ex. 84. Play the scale of G+ in parallel 3^{rds} and 6^{ths} for two octaves with at least two fingerings for each scale.

Ex. 85. Play and experiment with the scales of E- in 3^{rds} and 6^{ths}.

Ex. 86. Play the scales D+, B-, F+ and D- in parallel 3^{rds} and 6^{ths} with at least two fingerings for each scale. Create several rhythmic patterns to apply to the scales.

The 10th

Perhaps the most idiomatic interval on the guitar is the 10th. The particular note span related to left-hand fretting limitations and the naturally polyphonic voice of the fretboard makes this interval well suited to guitar textures. This octave expansion of the 3rd is ubiquitous in the repertoire and is often found in extended parallel passages (see figure 4). The particular need for fluency with the fretboard geography of this interval merits special attention.

Minuetto by N. Paganini



Giuliani op. 51 no.4
Maestoso



The figure displays two musical excerpts. The first is a Minuetto by Niccolò Paganini, featuring a melodic line with a 10th interval (an octave plus a second) between the first and second notes of a phrase. The second excerpt is from Giuliani's op. 51 no. 4, marked 'Maestoso', showing a similar 10th interval in a melodic context.

Figure 4. Two pieces showing the use of 10^{ths} to create an effective guitar texture.

Ex. 87. Play the scale of G+ ascending and descending through one octave in parallel 10^{ths} by continuing this pattern:



The exercise shows a musical staff with a treble clef and a key signature of one sharp (F#). The melody consists of an ascending scale starting on G4 (first line) and ending on G5 (second line). The bass line consists of a descending scale starting on G4 (first line) and ending on G3 (first space). The interval between the two lines is a 10th (octave plus a second).

Ex. 88. Repeat Ex. 87 this time with the typical alternating pattern shown here.



Ex. 89. Play the following passage doubled in parallel 10^{ths} below the given notes.



Ex. 90. Repeat Ex. 89 using the pattern shown here.

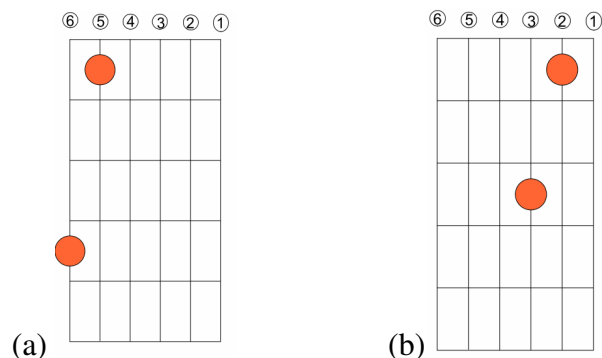


Ex. 91. Create similar patterns using 10^{ths} in the keys of F+, D+, A+ and E+.

The Major 2nd

This is the second smallest interval in the Western musical system and as such can only be played on adjacent strings. Here, as in other instances using adjacent string configurations, the majority of the string pairings have one shape (a)

with the ③-② pairing being the exception (b):



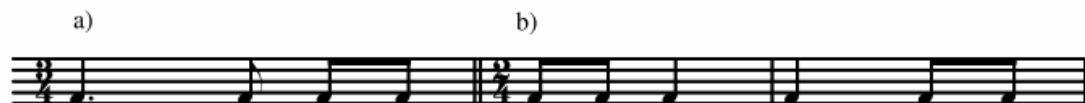
The major 2nd can also be played melodically, as a whole tone on one string with one intervening fret.

Experiment to find major 2^{nds} across the fretboard in all configurations.

Ex. 92. Continue this pattern converting minor 7^{ths} to major 2^{nds}.



Ex. 93. Create melodies in parallel major 2^{nds} by repeating these rhythmic patterns:



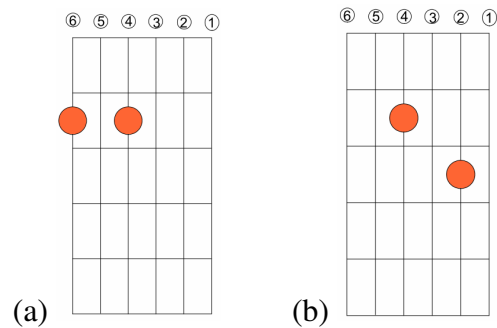
Ex. 94. Repeat Ex. 93 using open bass notes on ④, ⑤ and ⑥ as an accompanying voice.

The Minor 7th

Because of its large size - only a whole tone smaller than a perfect octave - it is practical to play the minor 7th only in configurations with one intervening string.

There are two groupings with ⑥-④ and ⑤-③ configurations sharing one shape

(a) and ④-② and ③-① sharing another shape (b):



Note that minor 7^{ths} are available on the open string combinations ⑥-④ and ⑤-③.

Experiment to find minor 7^{ths} across the fretboard in all configurations.

Ex. 95. Continue this pattern in which perfect octaves are converted to minor 7^{ths} to the specified end point. Choose a fingering pattern which allows for the open string configurations of the minor 7th to be included.



Ex. 96. Continue this pattern in which major 6^{ths} are converted to minor 7^{ths} to the specified end point.



The harmonic significance of the minor 7th is that it forms the two outer notes of the root-position dominant 7th chord. The 7th of this chord, i.e. the highest note, most often resolves downward to the 3rd of the tonic chord.

Ex. 97. Continue this pattern in which minor 7^{ths} “resolve” to major 3^{rds}.⁴⁴



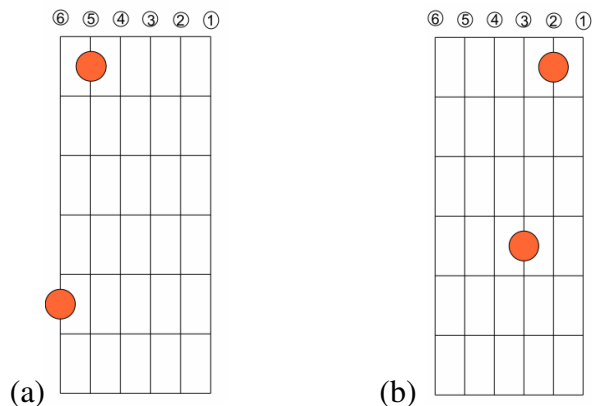
Ex. 98. Repeat Ex. 97 “resolving” this time to minor 3^{rds}.

The Minor 2nd

The minor 2nd is the inversion of the major 7th. Because of the necessity of an extended posture in the left hand, it is considerably less practical to play this interval harmonically, that is, in its adjacent string configuration. Once again, the majority of the string pairings in the adjacent string forms have one shape (a) with the ③-②

⁴⁴ Lloyd. The notion of resolution exercises is modeled after exercises in Chapter VI, exercised group 13.

pairing being the exception (b):



Ex. 99 is based on a typical fingering of the chromatic scale with emphasis on the occurrence of the adjacent string minor 2nd as the passage ascends and descends.

Ex. 99. Continue this pattern until reaching the specified end point.



The minor 2nd is also understood as a semitone. Because the frets are set all in semitones, the minor 2nd/semitone is very easily played melodically on one string.

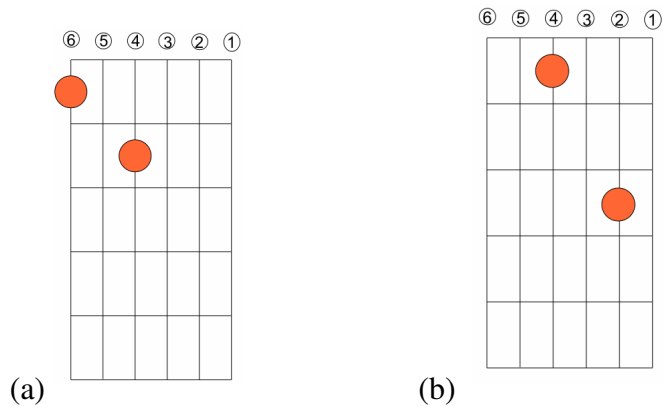
The Major 7th

Because of its large size - only a semitone smaller than a perfect octave - it is

practical to play the major 7th only in configurations with one intervening string.

There are two groupings with ⑥-④ and ⑤-③ configurations sharing one shape (a)

and ④-② and ③-① sharing another shape (b):

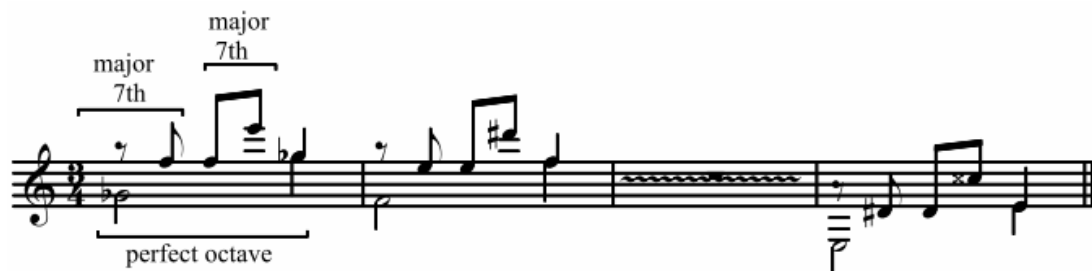


Experiment to find major 7^{ths} across the fretboard in all configurations.

Ex. 100. Continue this pattern until reaching the specified end point.



Ex. 101. Continue this pattern until reaching the specified end point.



Ex. 102. The third movement of Leo Brouwer's 'Tres Apuntes' ('Sobre un canto de Bulgaria') contains a passage with a melody doubled in major 7ths in mm. 16-20. Play this passage.

The Tritone

The tritone is probably the most unstable interval in Western music in that it very strongly implies an impending resolution. It has two enharmonic forms, the augmented fourth, which resolves outward to a 6th and the diminished fifth which resolves inward to a 3rd. The tritone is the active element in the dominant 7th chord and both forms of the interval can occur in this context. (See figure 5.)

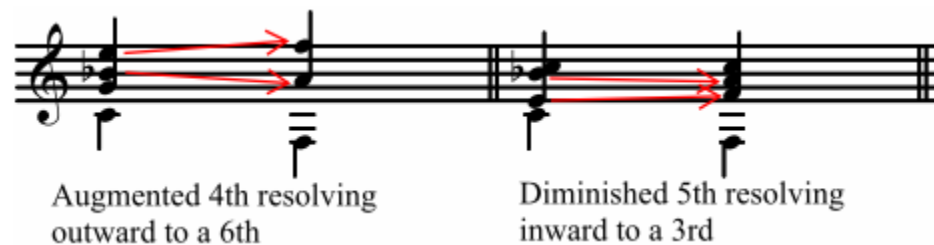
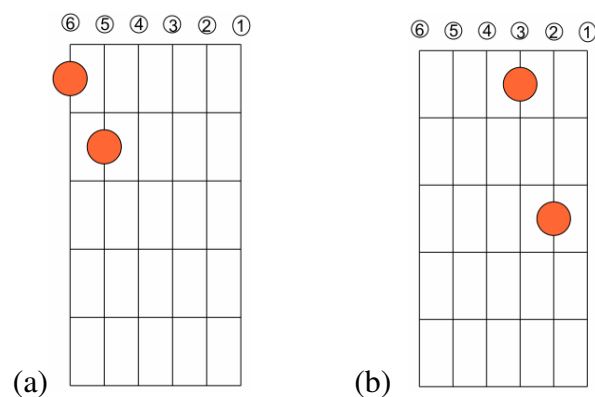


Figure 5. Resolutions of two enharmonic forms of the tritone.

The tritone is a smaller interval which is only played in adjacent string configurations. As you will now readily suppose, the majority of the string pairings have one shape (a) with the ③-② pairing being the exception (b):



Experiment to find tritones across the fretboard in all configurations.

Ex. 103. Continue the following pattern until reaching the specified end point.

Ex. 104. Repeat Ex. 103 resolving to minor 6^{ths}.

Ex. 105. Continue the following pattern until reaching the specified end point.⁴⁵

Ex. 106. Repeat Ex. 105 resolving to a minor 3rd and ending as shown:

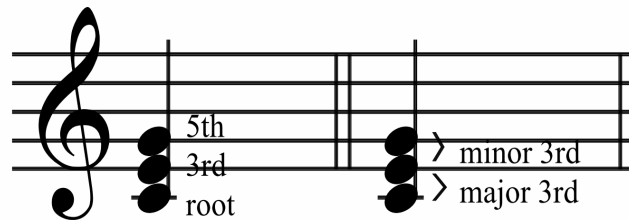
III-v: Chords

The Root-Position Major Triad, Cardinal and Dilated Voicings

The triad is the most basic formulation of harmony in Western music. While

⁴⁵ Lloyd. The notion of resolution exercises for tritones is modelled after exercises in Chapter VI, exercise group 15.

it is possible to conceive of a triad as any three notes assembled vertically, triads are generally formed by adding a 3rd above a given root note and then adding another 3rd to the top, thus creating a chord with a root, a third and a fifth. A root-position major triad is specifically comprised of a root, with major 3rd and perfect 5th above. It may also be seen as a major 3rd above the root with a minor 3rd above the third:



Ex. 107. Choose notes at random across the fretboard and form major triads above them.

Ex. 108. Moving across strings as much as possible (rather than ascending on any one string), play a major triad on each degree of a G+ scale.

Ex. 109. Repeat Ex. 105 on the scales of A_b+, A+ and B_b+

Triads like those produced in the above exercises are often said to be in ‘closed’ position, that is, these are voicings not exceeding an octave from the lowest to the highest note. All the triads in Exercises 107-109 will in fact be within a perfect 5th. In fretboard practice, triadic forms which exceed the octave are more idiomatic and more commonly used. In the sub-chapter on intervals we examined a similar postulation where the 10th was proposed as a more ‘guitaristic’ interval than the 3rd.

This preference for chordal sonorities which exceed the octave similarly has to do with the polyphonic voice of the guitar fretboard, where it is natural to play in a texture with bass and soprano components. It is also a natural consequence of the available pitch range related to left-hand fretting limitations. Theorists would refer to these as “open” voicings.

A systematic approach to the playing of triads in closed and, especially, in open position, is essential to good fretboard practice. A nomenclature specific to this system is also necessary in order to avoid potential conflicts of meaning with the more purely theoretical use of the terms “open” and “closed”. Triads that are played within an octave and on three consecutive strings will be called “**cardinal**” triads. Idiomatic triad voicings which exceed this range will be called “**dilated**” triads.⁴⁶

The systematic distribution of the two higher notes of the triad can yield a practical flexibility and lend a musical vitality to harmonizations, figured bass realizations and arrangements for the fretboard. Starting with the root-position cardinal triad and moving the third and fifth an octave higher while maintaining the root note at its original pitch, results in an effective voicing which exceeds the span the octave. This will be called the *primary dilation (PD)*. Starting in turn with this primary dilation and moving the fifth of the chord back down an octave produces another very useful and sonorous voicing, again exceeding the range of a cardinal triad. This will be called the *secondary dilation (SD)* (see figure 6). We may arrive

⁴⁶ “Cardinal” is descriptive of the triad voicing that would be used in basic theoretical descriptions, wherein all the notes are present and the span is less than an octave. The “dilated” triads also contain all the notes but the upper two are displaced from the bass note such that the whole exceeds the octave.

more directly at the secondary dilation by moving the middle note of the primary triad an octave higher.

The figure shows three fretboard diagrams for the D major triad (D, F#, A) on a six-string guitar. Each diagram is a 6x5 grid representing frets 1-5 and strings 6-1. Fret numbers are indicated on the left and top.

- Cardinal:** Shows the triad with the root (D) on the 5th fret, 6th string; the third (F#) on the 3rd fret, 4th string; and the fifth (A) on the 2nd fret, 3rd string.
- Primary dilation:** Shows the triad with the root (D) on the 5th fret, 6th string; the third (F#) on the 5th fret, 4th string; and the fifth (A) on the 2nd fret, 3rd string.
- Secondary dilation:** Shows the triad with the root (D) on the 5th fret, 6th string; the third (F#) on the 4th fret, 4th string; and the fifth (A) on the 2nd fret, 3rd string.

Below the diagrams are the labels: *Cardinal*, *Primary dilation*, and *Secondary dilation*.

Figure 6. Cardinal, primary dilation (PD) and secondary dilation (SD) forms of the D major triad.

Ex. 110. Continue this pattern in which the given note serves successively as the root, third and fifth of cardinal major triads.

The exercise consists of three staves of music in 2/4 time, starting with a treble clef and a key signature of one sharp (F#).

- Staff 1:** Shows three triads labeled "root", "third", and "fifth". The notes are: D (root), F# (third), and A (fifth). The first triad is on the 3rd fret (D, F#, A). The second triad is on the 4th fret (E, G#, B). The third triad is on the 5th fret (F#, A, C#).
- Staff 2:** Shows a sequence of notes: D, F#, A, G#, E, C#, B, A, G#, F#, E, D. Each note is accompanied by a circled number indicating the fret: 4, 3, 4, 4, 3, 4, 3.
- Staff 3:** Shows a sequence of notes: D, F#, A, G#, E, C#, B, A, G#, F#, E, D. Each note is accompanied by a circled number indicating the fret: 4, 3, 4, 4, 3.

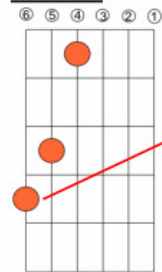
Chord Chart 1
Root Position Major Triads

Cardinal

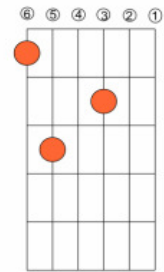
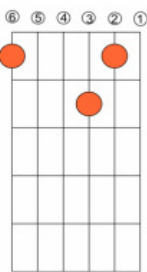
PD

SD

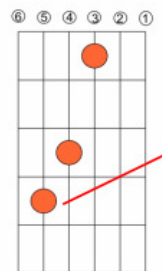
Root 6



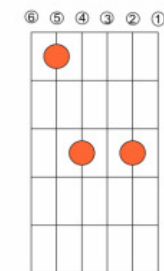
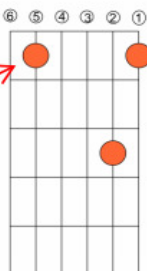
Same note →



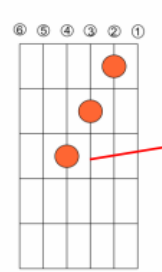
Root 5



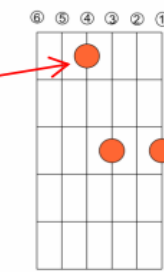
Same note →



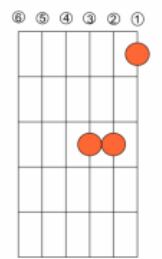
Root 4



Same note →



Root 3



Ex. 113. Continue this exercise converting cardinal triads to dilated triads until reaching F+ (all bass notes on ④).



Exercise 114 requires moving through the circle of fifths and continuing a pattern which explores cardinal, PD, and SD forms for each note. The octave placement and fretboard positioning of the bass notes must be carefully chosen to allow access to both the PD and SD forms. This kind of decision on octave disposition is one that arises frequently when arranging music for performance on the guitar.

Ex. 114. Continue this pattern through the circle of fifths.



Major triads occur on the tonic ($\hat{1}$), sub-dominant ($\hat{4}$) and dominant ($\hat{5}$) degrees in major keys.

Ex. 115. Play the cardinal major triads that occur in the following keys:

D+, A+, B \flat +, G+, A \flat +, C#+, B+. Can you think of any pop tunes that use progressions of primarily these chords?

Major triads occur on the dominant ($\hat{5}$) and sub-median ($\hat{6}$) degrees of the harmonic minor scale.

Ex. 116. Play the cardinal, PD and SD major triads that occur in the harmonic minor keys of A-, B-, C-, F-, E-, F#-. Use the rhythm shown in the example below in F-.



How do the root-position cardinal, PD and SD major-triad forms relate to the ‘familiar’ guitar chords known to most amateur players? Starting with forms we have encountered to this point, we may selectively add notes by doubling the root, third or fifth of the triad and then descend the resulting formulation fret by fret to I position, arriving at the familiar chords. Note that in root-position major chords, roots and fifths may be doubled and fifths may be omitted usually without negative results. Ex. 117 explores the relationship between three-note triadic forms and familiar chords.

Ex. 117. Follow the given instructions then descend the resulting chord chromatically until an open string or strings become(s) part of the chord structure – usually to I position – and take note of the ‘familiar’ chord that results.

(Solutions are given in figure 7.)

- a) *Start with an E+ cardinal triad, root ⑤. Double the root an octave higher on ②.*
- b) *Start with a G+ triad, root ④, secondary dilation. Double the root an octave higher on ②.*
- c) *Start with a D+ triad, root ⑤, secondary dilation. Double the root an octave higher on ③.*
- d) *Start with an A_b+ cardinal triad, root ④. Double the root an octave higher on ①.*
- e) *Start with a B+ cardinal triad root ③. Omit the fifth and double the root an octave higher on ①. Having descended until open strings are part of the chord, add the root-position cardinal triad root ⑥.*
- f) *Start with a G+ triad, root ⑥, secondary dilation. Double the root an octave higher on ④.*

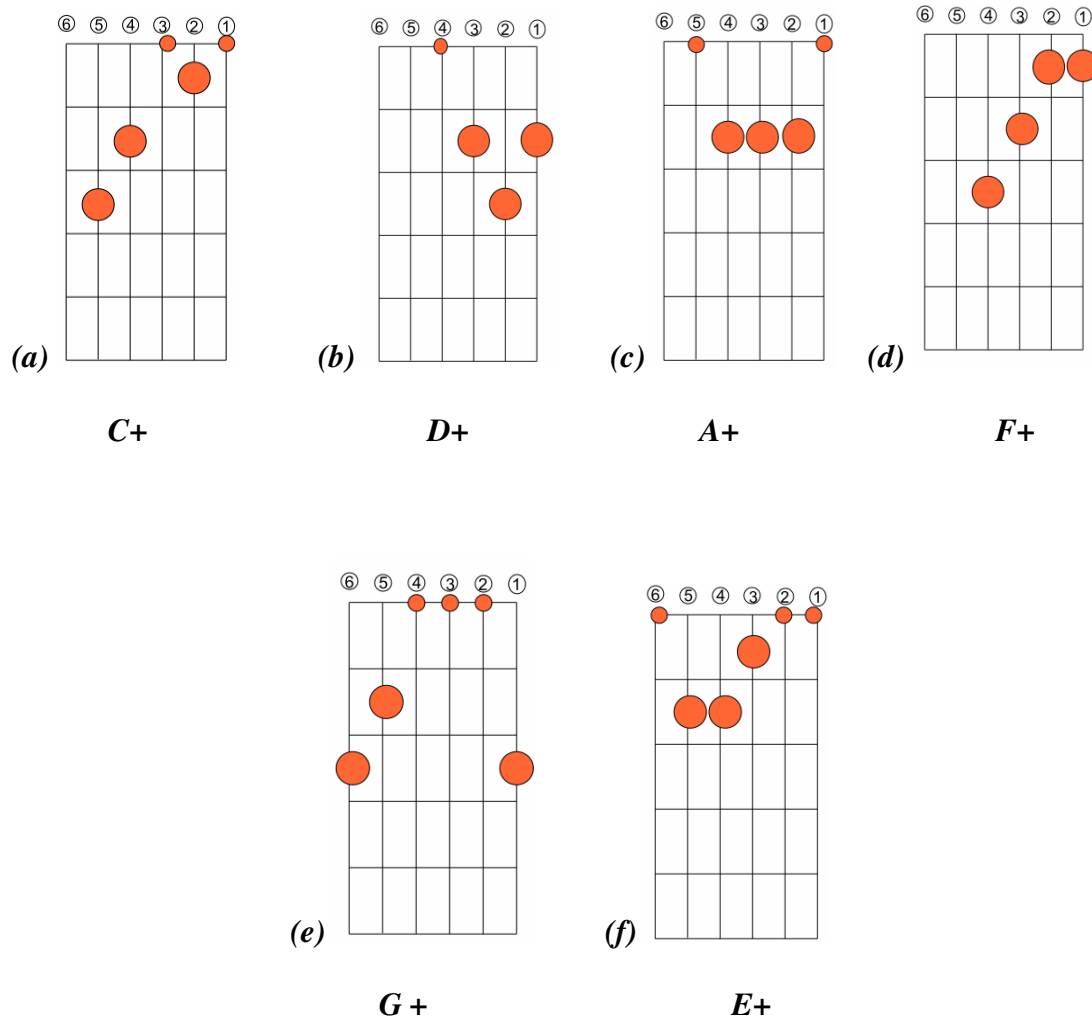


Figure 7. Familiar chords resulting from directions given in Ex. 117. The larger dots are fingered notes and the smaller dots indicate open notes played in the chords.

The Root-Position Minor Triad

A minor triad is comprised of a root, with minor 3rd and perfect 5th above. It may also be seen as a minor 3rd above a root with a major 3rd above the third:



Ex. 118. Choose notes at random anywhere on strings ⑥, ⑤, ④ or ③ and construct root-position minor triads above them.

Ex. 119. Moving across strings as much as possible, play minor triads on each degree of the one-octave A+ scale.

Ex. 120. Repeat Ex. 119 on the scales of G+, B \flat +, C+ and A \flat +

Ex. 121. Continue this pattern in which the given note serves successively as the root, third and fifth of cardinal minor triads.

The image contains three musical staves in treble clef, 2/4 time. The first staff shows three triads: the first is labeled 'root' with a circled 3 below it; the second is labeled 'third'; the third is labeled 'fifth'. The second and third staves show a sequence of six triads with circled 4 and 3 below the root notes, illustrating the pattern of moving across strings.

Examine and experiment with Chord Chart 2. Note once again the absence of a PD form for root ④ and of both PD and SD forms for root ③. Note also the similarity in shape to the major-triad forms: in all forms of the minor triad, the third is one fret lower than in the major triad.

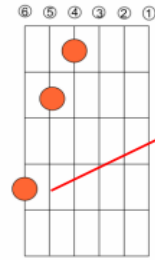
Chord Chart 2
Root Position Minor Triads

Cardinal

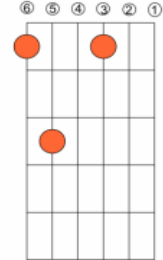
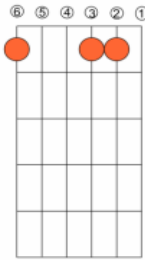
PD

SD

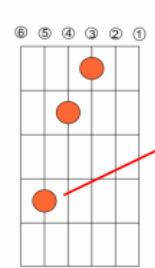
Root ⑥



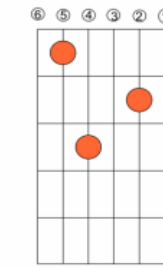
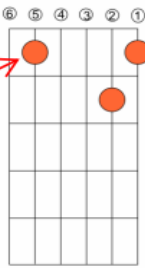
Same note



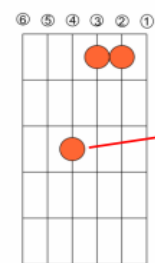
Root ⑤



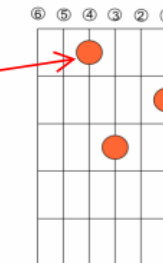
Same note



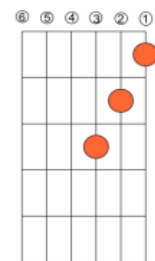
Root ④



Same note



Root ③



Ex. 122. Continue this exercise converting cardinal minor triads to dilated triads until reaching $A\flat^-$ (all bass notes on $\textcircled{6}$).



Ex. 123. Continue this exercise converting cardinal minor triads to dilated triads until reaching $D\flat^-$ (all bass notes on $\textcircled{5}$).



Ex. 124. Continue this exercise converting cardinal minor triads to dilated triads until reaching F^- (all bass notes on $\textcircled{4}$).



Ex. 125. Continue this exercise through the circle of fifths choosing the octave disposition of bass notes carefully to allow for full execution of the pattern at each note.



In major keys, minor triads occur on the supertonic ($\hat{2}$), mediant ($\hat{3}$) and sub-mediant ($\hat{6}$) degrees of the scale. In minor keys minor triads occur on the tonic ($\hat{1}$) and sub-dominant ($\hat{4}$) degrees of the scale.

Ex. 126. Play the cardinal minor triads that occur in the following keys:

D⁺, A⁺, B^{b+}, G⁺, A^{b+}, C^{#+}, B⁺.

Ex. 127. Play the cardinal, PD and SD minor triads that occur in the following harmonic minor keys:

A⁻, B⁻, C⁻, F⁻, E⁻, F^{#-}.

Exercise 128, like Exercise 117, explores the relationship between three-note triadic forms and familiar chords, this time in the minor mode.

Ex. 128. Follow the given instructions then descend the resulting chord fret by fret until an open string or strings become(s) part of the chord structure - usually to I position - and take note of the 'familiar' chord that results. (Solutions are given in figure 8.)

- a) *Start with a C- triad, secondary dilation, root ⑤. Double the root an octave higher on ③.*
- b) *Start with a G- triad, root ④, secondary dilation. Double the root an octave higher on ②.*
- c) *Start with a G- triad, root ⑥, secondary dilation. Double the root an octave higher on ④.*

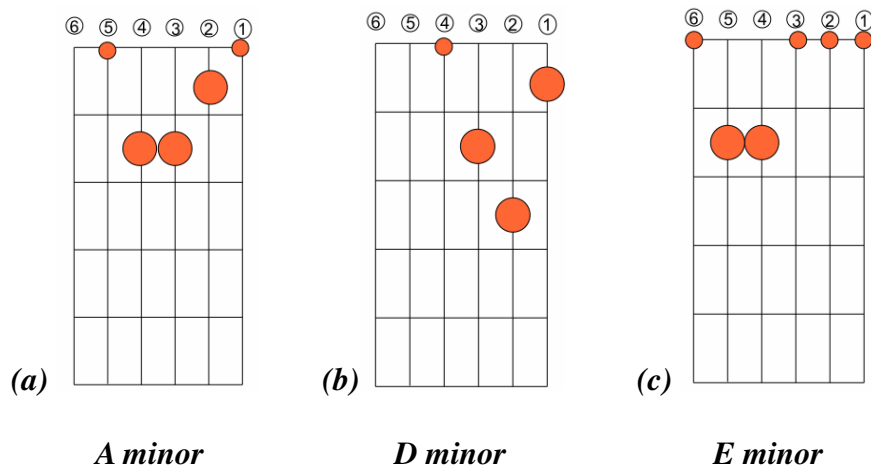


Figure 8. Familiar minor chords resulting from directions given in Ex. 128. The larger dots are fingered notes and the smaller dots indicate open notes played in the chords.

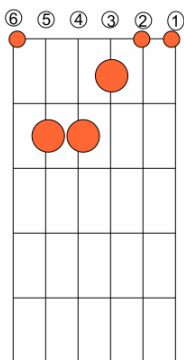
Barre Chords and Cadence Formulas

Derivation of Cadence Chords (Major Keys)

It is instructive to understand the relationships between the triadic forms studied in this method and the commonly used barre chords. Having established these relationships, it is both simple and useful to derive cadence formulas using the barre chord forms. This will allow us to play the primary chord progression, I – IV – V – I in any major or minor key. Let's first derive the common barre chords roots ⑥ and ⑤. Consider once again Ex. 117f):

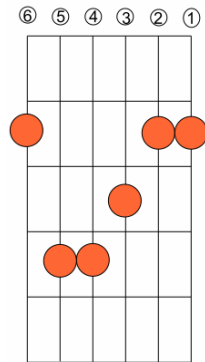
Start with a G+ triad, root ⑥, secondary dilation. Double the root an octave higher on ④.

Descending to I position gives the common E-major chord:

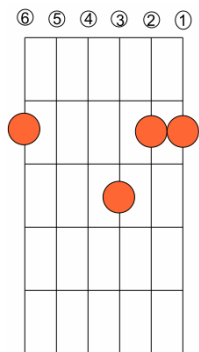


If we raise this form by one whole-tone it will be necessary to use a finger 1 barre at fret II covering all strings and playing specifically, ⑥, ② and ① while the other fingers play the remaining notes. The resulting chord is F#+ with a root note on ⑥. This is the common ⑥ root barre chord which can then be easily shifted to play any

major chord whose root can be found on ⑥; G+, A_b+, A+, etc.:



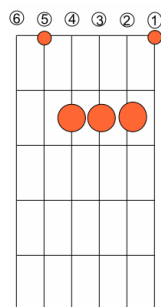
. By choosing only selected strings within this chord form we can sound both the root ⑥ primary and secondary dilations. Other chords voicings can be derived similarly. For the purposes of cadence formulas, we will use the chord derived by playing specifically ⑥, ③, ② and ①:



Let's now derive the common ⑤ barre chord. Consider Ex. 117 (c):

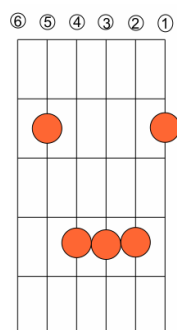
Start with a D+ triad, root ⑤, secondary dilation. Double the root an octave higher on ②.

Descending to I position gives the common A+ chord form:



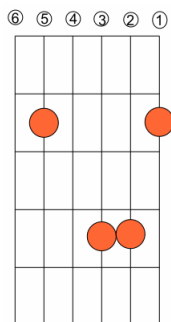
If we raise this form by one whole-tone it will be necessary to use a finger 1 barre at fret II covering all strings and playing specifically, ⑤ and ① while the other fingers play the remaining notes. The resulting chord is B+ with a root note on ⑤.

This is the common ⑤ root barre chord which can then be easily shifted to play any major chord with whose root can be found on ⑤: C+, C#+, D+, etc.:



By choosing only selected strings within this chord form we can sound both the root ⑤ primary and secondary dilations. Other chords voicings can be derived similarly. For the purposes of cadence formulas, we will use the chord

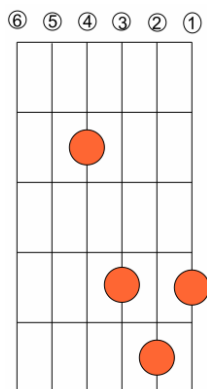
derived by playing specifically ⑤,③,② and ①:



Let's now derive the other chord in two slightly different shapes, to complete the basic elements needed for simple cadence formulas. Consider Ex.117 (b):

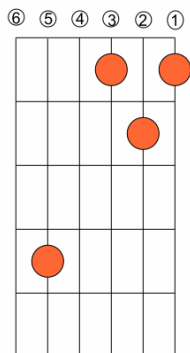
Start with a G+ triad, root ④, secondary dilation. Double the root an octave higher on ②.

This give a common voicing of a major chord with root placed on ④:



Descending this chord to I position gives, as we have seen, the common D+ chord, and playing this chord in II position gives an E+ chord. Another way of achieving the exact voicing with a different fingering is to place the root note at

exactly the same pitch on ⑤:



Playing this chord with root on ⑤ in IV position gives an E+ chord.

In the seventeenth century, a chord symbol system was developed where certain chord shapes were assigned letters of the alphabet. These letters were unrelated to the root notes of the chords. They served as easy reference for the amateur guitarist who, once having memorized the symbols, could play a prescribed series of chords to accompany dance and simple songs. This *alfabeto* system was used very widely in Italy during the period. Using this system as a model, we will assign symbols here to the cadence formula chords we have derived in order to be able to play I – IV – V – I cadences (see figure 9).

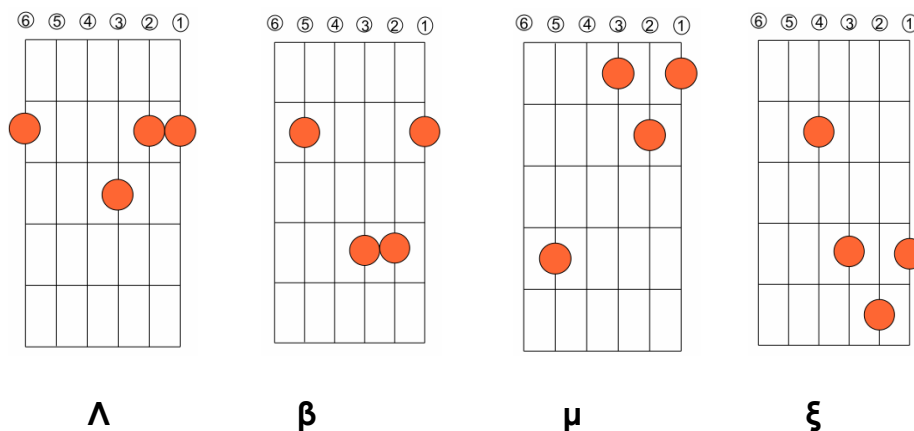


Figure 9. Common cadence formula chords with their symbols (major).

The Cadence Formulas (Major Keys)

Tonic on ⑥

For any tonic note found along ⑥ we may play a cadence using the primary chords I, IV, V and I by applying the formula **Λ, β, μ, Λ**. The result of playing this formula starting in III position, in the key of G+ will be:



Tonic on ⑤

For any tonic note found along ⑤ we may play a cadence using the primary chords I, IV, V and I by applying the formula **β, ξ, Λ β**. The result of playing this

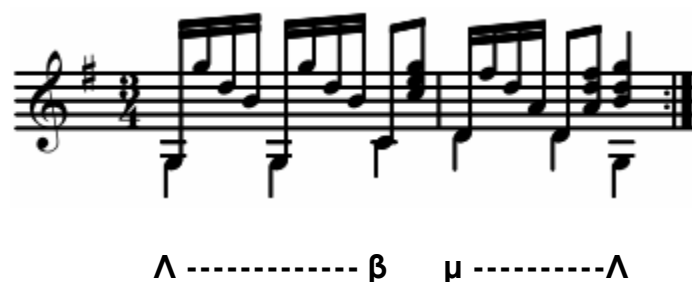
formula starting in III position, in the key of C+ will be:



Ex. 129. Beginning in C+ and proceeding through the circle of fifths, play I – IV – V – I cadences in all twelve major keys.

Ex. 130. Create different arpeggio patterns for each of the keys of B+, A+, E+ and D+ based on the cadence formulas.

E.g.



Derivation of Cadence Chords (Minor Keys)

Having established the major-key cadence formulas, it is relatively simple to make the small changes in chord forms to derive the basic elements of cadences in harmonic minor keys. In minor-key cadences using the same primary chords as the major key cadences, the tonic (I) and sub-dominant (IV) chords are minor chords while the dominant chord remains major. By simply lowering the third of the chords which act as I and IV in the cadences we can quickly derive the needed chords. See

figure 10 where the Λ , β and ξ chords are changed to minor chords and relabeled as Λ^- , β^- and ξ^- . The μ acts only as a dominant (V) chord and is therefore not altered in this process.

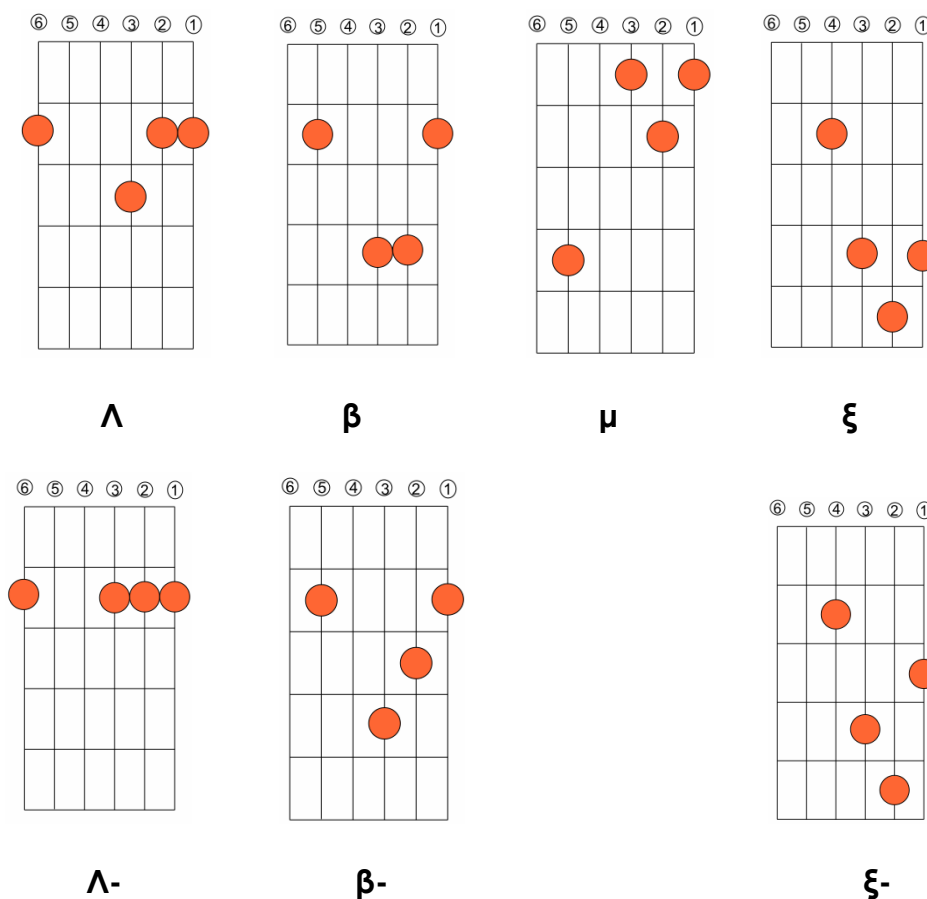


Figure 10. Minor chord forms derived from major chord forms

The Cadence Formulas (Minor Keys)

Tonic on ⑥

For any tonic note found along ⑥ we may play a cadence using the primary chords i, iv, V and i by applying the formula Λ^- , β^- , μ , Λ^- . Note that the dominant chord remains major in this formula. The result of playing this formula starting in III

position, in the key of G- will be:

A musical staff in G minor (one flat, 2/4 time) showing a cadence. The chords are: i (G2), iv (Bb3), V (D#4), and i (G2). The V chord has a circled 5 below it. Fingerings are indicated above the notes.

Tonic on ⑤

For any tonic note found along ⑤ we may play a cadence using the primary chords i, iv, V and i by applying the formula $\beta-$, $\xi-$, Λ , $\beta-$. Note that the dominant chord remains major in this formula. The result of playing this formula starting in III position, in the key of C- will be:

A musical staff in C minor (no sharps or flats, 2/4 time) showing a cadence. The chords are: i (C2), iv (Eb3), V (G3), and i (C2). The iv chord has a circled 4 below it. Fingerings are indicated above the notes.

Ex. 131. Beginning with C- and proceeding through the circle of fifths, play i – iv – V – i cadences in all twelve minor keys.

Ex. 132. Create different arpeggio patterns for each of the keys of B-, A-, E- and D- based on the cadence formulas.

The Root-Position Diminished Triad

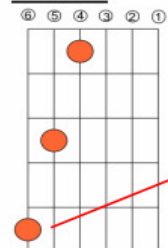
A diminished triad is comprised of a root, with minor 3rd and diminished 5th above. It may also be seen as a minor 3rd above a root with another minor 3rd above the third:



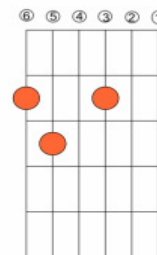
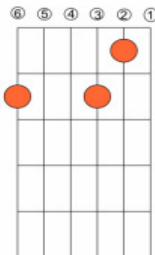
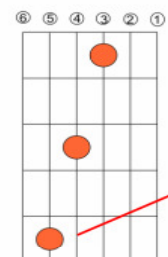
Ex. 133. Choose notes at random anywhere on strings ⑥, ⑤, ④ or ③ and construct root-position diminished triads above them.

Examine and experiment with Chord Chart 3. Note once again the absence of a PD form for root ④ and of both PD and SD forms for root ③. Note also the similarity to the minor triad forms: in all forms of the diminished triad, the fifth is one fret lower than in the minor triad.

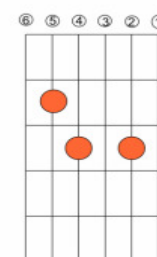
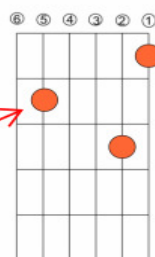
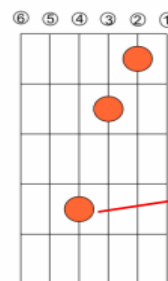
Chord Chart 3
Root Position Diminished Triads

Cardinal**PD****SD****Root ⑥**

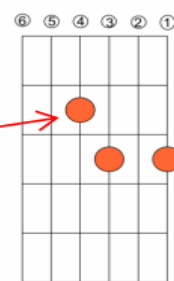
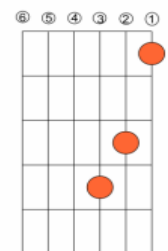
Same note

**Root ⑤**

Same note

**Root ④**

Same note

**Root ③**

Ex. 134. Continue the following until an F# root is reached.



Ex. 135. Continue the following until a C# root is reached.



Ex. 136. Continue the following until a G# root is reached.



Diminished triads are found on the leading tone ($\hat{7}$) degree of major scales and the supertonic ($\hat{2}$) and leading tone ($\hat{7}$) degrees of harmonic minor scales.

Ex. 137. Play the diminished triad found in the following major keys:

C+, D+, G+, A+, E \flat +, D \flat +

Ex. 138. Play the diminished triads found in the following harmonic minor keys:

A-, C-, D-, G-, B \flat -, F-

The Augmented Triad

An augmented triad is comprised of a root, with major 3rd and augmented 5th above. It may also be seen as a major 3rd above a root with another major 3rd above the third:



Ex. 139. Choose notes at random anywhere on strings ⑥, ⑤, ④ or ③ and construct augmented triads above them.

Examine and experiment with Chord Chart 4. Note yet again the absence of a PD form for root ④ and of both PD and SD forms for root ③. Note also the similarity to the **major** triad forms: in all forms of the augmented triad, the fifth is one fret higher than in the major triad. Note further that the secondary dilation forms of the triad can be seen as a minor 6th on top of another minor 6th. This is one logical consequence of the symmetry of this triad and of the minor 6th's inversions relationship with the major 3rd.

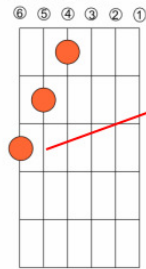
Chord Chart 4 Augmented Triads

Cardinal

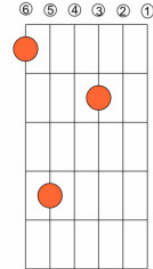
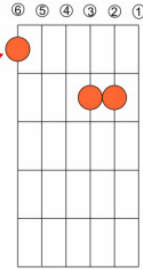
PD

SD

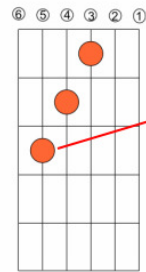
Root ⑥



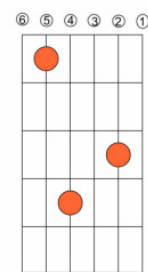
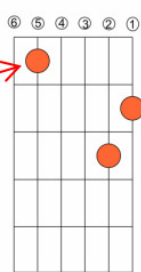
Same note



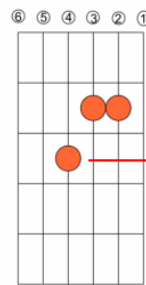
Root ⑤



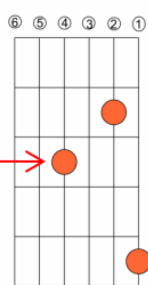
Same note



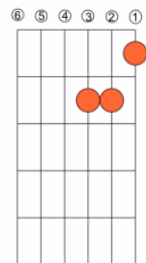
Root ④



Same note



Root ③



Ex. 140. Continue the following pattern until a G root is reached.



Ex. 141. Continue the following pattern until a C root is reached.



Ex. 142. Continue the following pattern until an E root is reached.



Inversion of Triads

A triad is said to be inverted when either the third or the fifth of the chord is sounded as the bottom note. A first-inversion triad has the third as its lowest note and the second-inversion has the fifth as its lowest note. As can be seen from figure 11, the internal interval structure is changed by these re-arrangements of the notes.



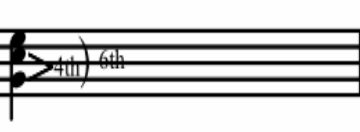
Root position	First inversion	Second inversion
		
$\begin{matrix} 5 \\ 3 \end{matrix}$	$\begin{matrix} 6 \\ 3 \end{matrix}$	$\begin{matrix} 6 \\ 4 \end{matrix}$

Figure 11. The interval structure of root-position and inverted triads.

The numbers, or figures, indicated below the triads are a short-hand for the interval structure of the triads. For example, the first-inversion triad is comprised of a 3rd and a 6th and thus it is abbreviated $\begin{matrix} 6 \\ 3 \end{matrix}$. In practice, the “3” is left out and so the figure representing a first-inversion chord becomes simply “6”. The second-inversion chord is represented by the figure $\begin{matrix} 6 \\ 4 \end{matrix}$. This system was used extensively by composers in the Baroque period to abbreviate the accompanying continuo parts of their works. Later, we will explore the realization of figured bass passages on the fretboard using this shorthand.

Examine and experiment with Chord Chart 5. Procedures for deriving the various forms of the first-inversion triad are the same as we have used for root-position triads. Starting with the cardinal triad and moving the higher two notes an octave higher while maintaining the bass note at its original pitch results in the primary dilation. The only difference is that the root is not the lowest note in these triads. Starting in turn with the primary dilation and moving the root of the chord back down an octave results in the secondary dilation. We may arrive more directly at the

secondary dilation by moving the middle note of the cardinal triad an octave higher.

Exercises 143-145 explore cardinal and dilated first-inversion major triads.

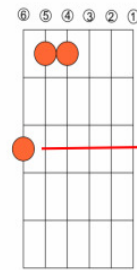
Chord Chart 5
First Inversion Major Triads

Cardinal

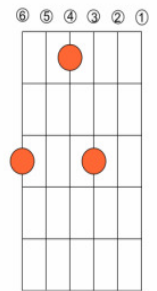
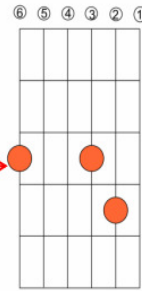
PD

SD

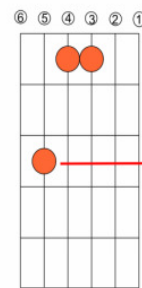
Bass ⑥



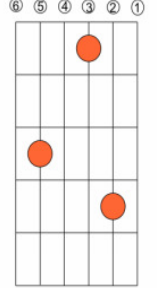
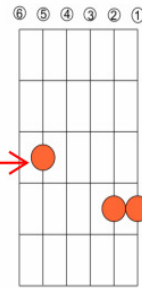
Same note →



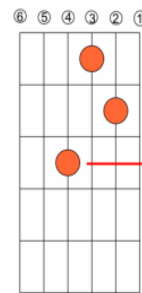
Bass ⑤



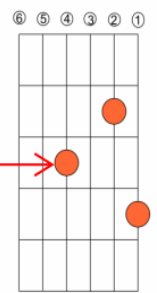
Same note →



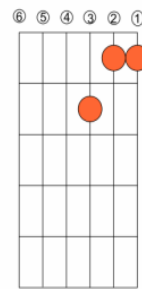
Bass ④



Same note →



Bass ③



Ex. 143. Continue the following pattern until arriving at a G bass note. Name the root of the triad at each change.



Ex. 144. Continue the following pattern until arriving at a C bass note. Name the root of the triad at each change.



Ex. 145. Continue the following pattern until arriving at an F bass note. Name the root of the triad at each change.



Exercises 146 through 150 explore the relationship on the fretboard between the root-position and first-inversion triads with the same root. In performing these exercises, try to take note of which finger plays the root note.

Ex. 146. Play the cardinal root-position triad of A \flat + bass note on \textcircled{C} , then play the cardinal first-inversion triad on the same strings. Continue, ascending by semitones until the highest fretted note is at XII. Name the root of each chord played.

Ex. 147. Repeat Ex. 146 for triads with bass note on \textcircled{D} starting on D \flat

Ex. 148. Repeat Ex. 146 for triads with bass note on \textcircled{E} starting on F.

Ex. 149. Continue this pattern where the root becomes the 3rd of a first-inversion triad, until the highest fretted note is at XII. Name the root of each chord played.

Notice that the roots of the two triads at the point of change of inversion are a minor 6th apart.



Ex. 150. Repeat Ex. 149 for triads with bass note on \textcircled{D} and for triads with bass note on \textcircled{E} .

First-inversion Minor Triads

Examine and experiment with Chord Chart 6. The procedures for deriving the various forms of the first-inversion minor triad are the same as those used in all previous instances of triad derivation. Notice the strong similarity in shape with the first-inversion major triads; in all cases, the third of the chord - the bass note in the first-inversion triad - is one semitone lower in the minor triad than it is in the major.

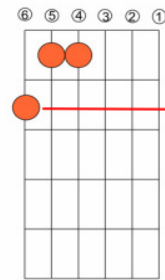
Chord Chart 6
First Inversion Minor Triads

Cardinal

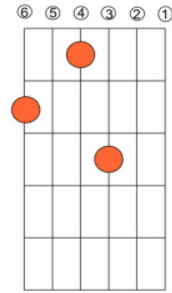
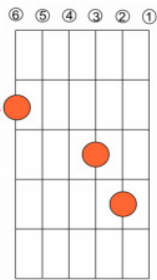
PD

SD

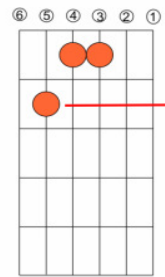
Bass ⑥



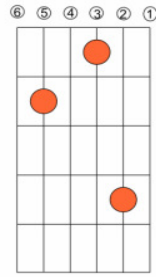
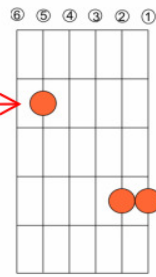
Same note →



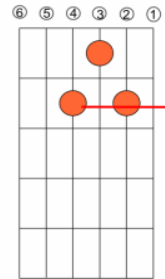
Bass ⑤



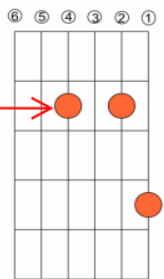
Same note →



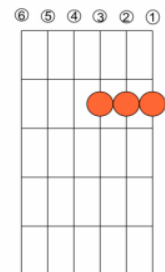
Bass ④



Same note →



Bass ③



Exercises 151-153 explore cardinal and dilated first-inversion minor triads.

Ex. 151. Continue the following pattern until arriving at a G bass note. Name the root of the triad at each change.



Ex. 152. Continue the following pattern until arriving at a C bass note. Name the root of the triad at each change.



Ex. 153. Continue the following pattern until arriving at an F bass note. Name the root of the triad at each change.



Exercises 154 through 158 explore the relationship on the fretboard between the root-position and first-inversion minor triads with the same root. In performing these exercises, try to take note of which finger plays the root note.

Ex. 154. Play the cardinal root-position minor triad of G#-, bass note on ④, then play the cardinal first-inversion minor triad on the same strings. Continue, ascending by semitones, until the highest fretted note is at XII. Name the root of each chord played.

Ex. 155. Repeat Ex. 154 for triads with bass note on ⑤ starting on C#.

Ex. 156. Repeat Ex. 154 for triads with bass note on ④ starting on F.

Ex. 157. Continue this pattern where the root becomes the 3rd of a first-inversion triad until the highest fretted note is at XII. Name the root of each chord played.

Notice that the roots of the two triads at the point of change of inversion are a major 6th apart.



Ex. 158. Repeat Ex. 157 for triads with bass note on ⑤ and for triads with bass note on ⑥.

First-inversion Diminished Triads

Examine and experiment with Chord Chart 7 which shows the cardinal and dilated forms of the first-inversion diminished triad. Note the similarity in shape to the first-inversion minor triad; in every case the fifth of the chord is one semitone lower in the first-inversion diminished triad.

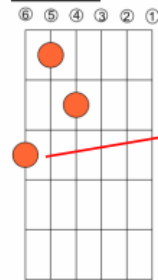
Chord Chart 7
First Inversion Diminished Triads

Cardinal

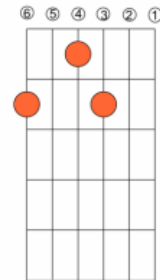
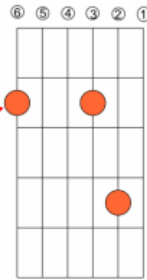
PD

SD

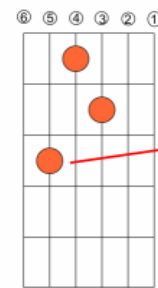
Bass ⑥



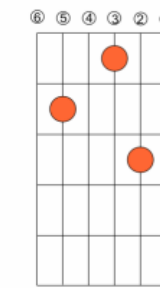
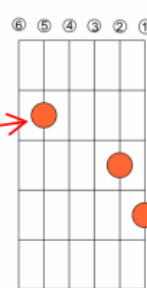
Same note →



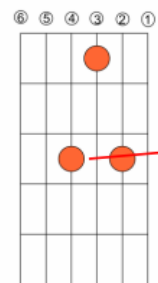
Bass ⑤



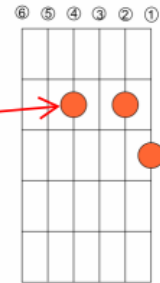
Same note →



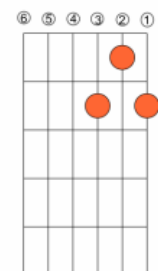
Bass ④



Same note →



Bass ③



Ex. 159 Play the cardinal, primary dilation and secondary dilation first-inversion diminished triads, which have root notes of B, F#, D, E, G and A. Find two alternatives for each root note and be aware of the position of the tritone in each form.

Exercises 160 through 162 explore the relationship on the fretboard between the root-position and first-inversion diminished triads with the same root. In performing these exercises be aware of which finger plays the root note.

Ex. 160. Play the cardinal root-position diminished triad of A⁰, bass note on ⑥, then the play the cardinal first-inversion diminished triad on the same strings. Continue, ascending by semitones until the highest fretted note is at XII. Name the root of each chord played.

Ex. 161. Repeat Ex. 160 for triads with bass note on ⑤ starting on D⁰.

Ex. 162. Repeat Ex. 160 for triads with bass note on ④ starting on F#⁰.

First-Inversion Augmented Triads

The augmented triad has a fascinating circularity in how the root-position and inverted forms of the triad are related. *Because of their internal symmetry, any note in an augmented triad can be considered the root*, and this has a felicitous effect on the playing of these triads. Let's take a three-step process, inverting this chord to first

inversion and then to second inversion. Start with a root-position augmented triad on A played with root \textcircled{A} :



Secondly, build a first-inversion augmented triad with A as the bass note, that is, with A as the third of the chord. The root will be F, a major 3rd below. The chord will therefore be spelled F-A-C# and appear in first-inversion as

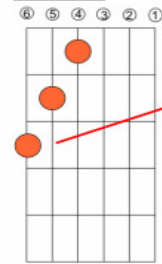


. This chord will be played with exactly the same shape as the root-position chord. Therefore, with augmented triads, *the root-position and first-inversion chords with the same bass note are played in the same way*. Taking this to a third step, construct a second-inversion augmented triad with bass A. The root of the chord will be D \flat and the chord will be spelled D \flat -F-A:

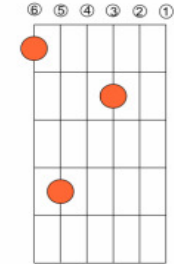
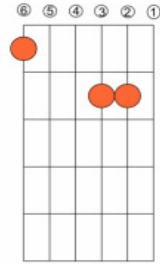
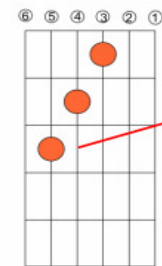


. This triad will be played with exactly the same shape as the root-position and first-inversion chords. Therefore, with augmented triads, *the root-position, first-inversion **and** second-inversion chords with the same bass note all have the same shape*. This holds true for cardinal and dilated forms. Examine Chord Chart 8 (first-inversion augmented triads) and note that it has exactly the same forms in the same order as is found in Chord Chart 4 (augmented triads). If you were to derive a chord chart for second-inversion augmented triads, it too would look exactly the same.

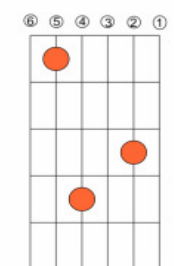
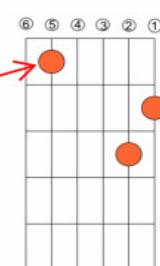
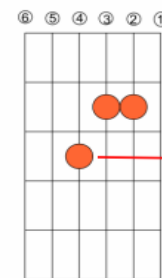
Chord Chart 8
“First Inversion” Augmented Triads

Cardinal**PD****SD****Bass ⑥**

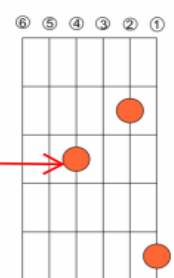
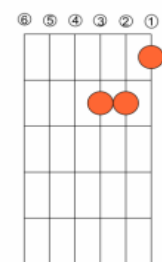
Same note

**Bass ⑤**

Same note

**Bass ④**

Same note

**Bass ③**

Ex. 163. Play the cardinal root-position triad of B augmented on ③-②-① followed by the first-inversion triad of the same root on the same set of strings. Continue to the second-inversion triad on the same strings.

If you have done Ex. 163 correctly, you will have noticed that all the triads of the same root on the same strings have the exact shape regardless of inversion. Or stated alternatively, to change the inversion, you simply move the shape four positions higher. This should make sense because four frets on the fretboard marks the distance of a major 3rd, which is the sole interval that comprises an augmented triad. The four-fret relationship among the inversions also holds for the PD and SD forms.

The internal symmetry of the augmented triad makes all of these relationships possible. The diminished triad, being comprised entirely of minor 3^{rds}, is also symmetrical but the same relationships between form and inversion do not exist for this triad. The reason is that in ascending in major 3^{rds}, we arrive back at the enharmonically respelled starting note in three steps, e.g. C-E-G#-B#, and, there are three notes in a triad. If we ascend in minor thirds, the process takes four steps, e.g. A#-C#-E-G-B \flat , while the fact remains that there are only three notes in the triad. While we do not observe the same relationships in the diminished triad, we will see similar convergences in the four-note diminished 7th chord.

Scales in Parallel First-Inversion Triads

Having now become familiar with first-inversion triads of all qualities, we can play scales in parallel cardinal triads. This would not be possible using root-position triads as we would violate the voice-leading directive to avoid parallel 5^{ths} each time we proceeded from one chord to the next. This is because all root-position triads have 5^{ths} between the bass and an upper voice.

Scales in cardinal first-inversion triads may be played as shown in figure 12 below.

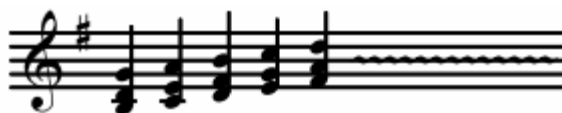


Figure 12. Scale in cardinal first-inversion triads of G+.

This kind of progression occurs frequently in the guitar works of Joaquin Turina (see figure 13).

(a)



(b)



Figure 13. Excerpts from *Rafaga* (a) and the *Allegro vivo* from the *Sonata* (b) by Joaquín Turina showing passages in parallel first-inversion triads.

As you are playing these scales you will need to note the quality of triads on each degree of the major and harmonic minor scales as shown in figure 14.

<u>Major</u>						
I	II	III	IV	V	VI	VII
+	-	-	+	+	-	0

<u>Harmonic Minor</u>						
I	II	III	IV	V	VI	VII
-	0	X	-	+	+	0

Figure 14. Chord quality by scale degree.

Ex. 164. Play one-octave scales ascending and descending, in parallel first-inversion triads in the keys of C+, A-, G+, E-, D+, B-, A+ and F#-. Name the triads both by root and quality as you play.

Ex. 165. Play the same scales inventing arpeggio patterns such as



Second-Inversion Triads

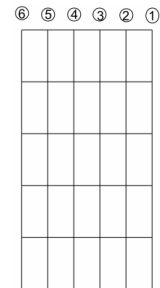
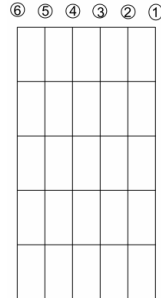
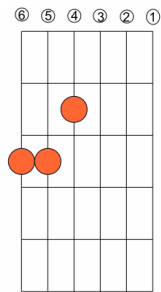
Second-inversion triads of any quality have the fifth of the triad as the lowest note. Chord Charts 9, 10 and 11 show the cardinal triad forms for each quality and bass string.

Ex. 166. Derive primary and secondary dilations for second-inversion major, minor and diminished triads using the methods applied to other triads earlier in this book. (Remember that augmented triads will have the same form regardless of their inversions and any note of the triad can be considered the root.) Fill out Chord Charts 9, 10 and 11 with your findings.

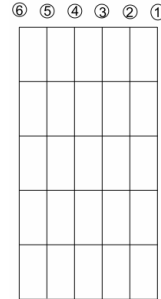
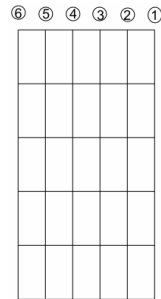
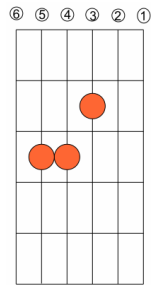
Chord Chart 9
Second-inversion Major Triads
PD **SD**

Cardinal

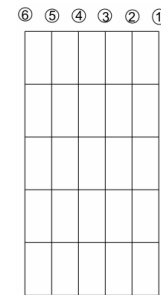
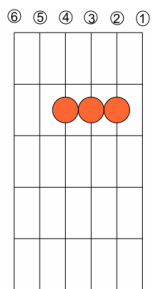
Root 6



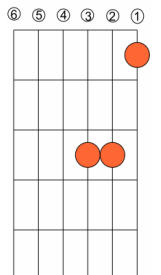
Root 5



Root 4



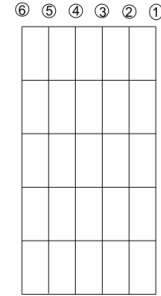
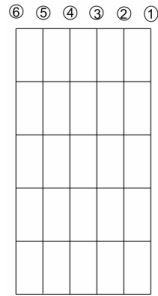
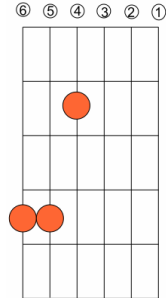
Root 3



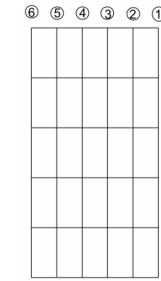
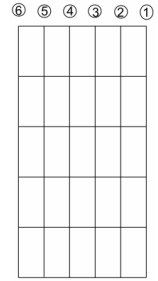
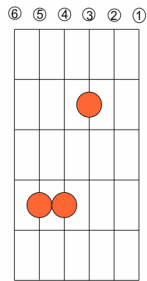
Chord Chart 10
Second-inversion Minor Triads
PD **SD**

Cardinal

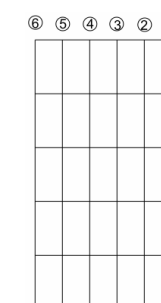
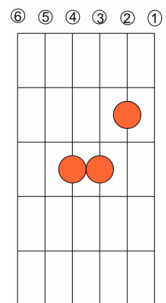
Root ⑥



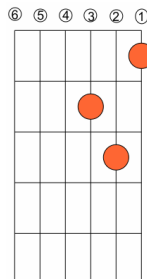
Root ⑤



Root ④



Root ③



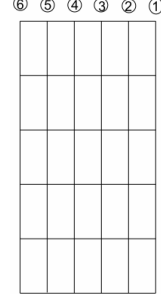
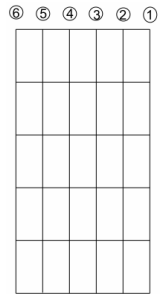
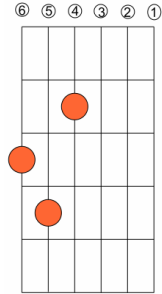
Chord Chart 11
Second-inversion Diminished Triads

Cardinal

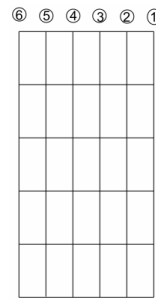
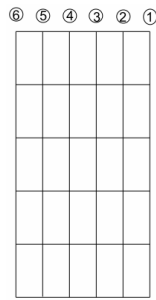
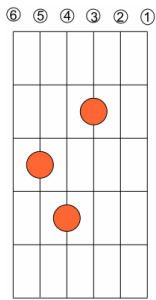
PD

SD

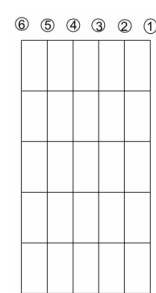
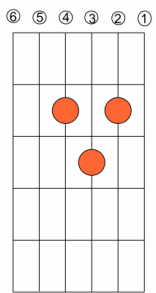
Root ⑥



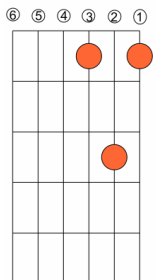
Root ⑤



Root ④



Root ③



Ex. 167. Starting in G+ and descending in whole tones to B+ play the cardinal, PD and SD triads in second-inversion bass note ⑥. Play the cardinal, PD and SD forms consecutively following these rhythms:



E.g.



Ex. 168. Repeat Ex. 167 with bass note on ⑤ starting on B+ and ending on F+.

Ex. 169. Repeat Ex. 167 with bass note on ④ starting on E+ and ending on A♭+.

Ex. 170. Perform Ex. 167-169 using second-inversion minor triads.

Ex. 171. Perform Ex. 167-169 using second-inversion diminished triads.

Derivation of Chord Voicings from Cardinal Triads, Omission and Doubling

We have to this point used a systematic and logical approach to deriving triadic voicings on the fretboard, but there are still many other chord voicings the fretboard practitioner will need to have at hand to successfully harmonize melodies

and realize figured basses. Realistically, the guitar can only sustain the movement of three rhythmically active voices in a fluent manner. It has a pitch range of three-and-one-half octaves but limited access to that range at any one time and in any one position. For three-voice harmonizations, then, it is essential to have extensive choice in chord voicing. The bass strings ⑥, ⑤ or ④ can primarily be used to set the inversion of the chord being used and higher strings can be used to sustain harmonies and the melody.

Exercises 172 through 180 explore this method of chord derivation and are among the most critical in this book. In attempting these exercises, try to retain as much as possible the original shape and structure of the triads and change fingering as necessary. The central task in deriving these voicings will be **omitting** certain notes to create three-voice triads from four-note chords. Here are some rules to follow to arrive at legitimate and workable voicings:

- 1) You may delete any doubled notes.
- 2) You may delete an extra fifth from a second-inversion chord (though it is not necessary to do so).
- 3) You should normally omit the higher third in a first-inversion chord. Otherwise, never omit the third of a chord.
- 4) Except in the case of a second-inversion chord, the fifth can always be omitted.

Now do Exercises 172 through 179. (Note that a solution for Ex.178 is given and discussed below, on pp.150-151.)

Ex. 172. Start with a cardinal triad of D+ root ⑤. Use lower notes to create both first and second-inversion chords.

Ex. 173. Start with a cardinal first-inversion C+ triad bass-note on ⑤. Use lower notes to create a root-position chord and triad.

Ex. 174. Start with a cardinal second-inversion triad of A+ bass-note ⑤. Use lower notes to create a root-position chord and triad.

Ex. 175. Start with a cardinal G+ triad in root position, root ④. Use lower notes to create first-inversion, second-inversion and root-position chords and triads.

Ex. 176. Start with a cardinal first-inversion E_b+ triad bass-note ④. Use lower notes to create root-position, second-inversion and first-inversion chords and triads.

Ex. 177. Start with a cardinal second-inversion B+ triad bass-note ④. Use lower notes to create first-inversion and root-position chords and triads.

Ex. 178. Start with cardinal root-position C+ triad root ③. Use lower notes to create second-inversion, root-position, and first-inversion chords and triads.

Ex. 179. Repeat Ex. 178 for first and second position cardinal triads, bass-note ③.

Let us look at Ex. 178 as an example of this method of chord derivation. It

begins with a cardinal root-position C+ triad on ③-②-① and uses ④, ⑤ and ⑥ to set the inversion. (Follow the resultant chord voicing in figure 15). Adding G on ④ yields a second-inversion chord in four voices (a). The top G can be removed for an excellent three-note voicing, the equivalent of cardinal second-inversion C+, bass note ④. Appending a C on ⑤ gives a root-position chord in four voices (b). Adding G on ⑥ gives another second-inversion chord in four voices (c). Here too, the top G can be removed for an excellent three-note voicing. And finally, playing an E on ④ and deleting the E on ② yields a first-inversion chord in three voices, the equivalent of secondary-dilation, first-inversion C+ (d).

(a) (b) (c) d)

C+ 6/4 Four voice 6/4 6 voicing
 chord voicings root position voicings

Figure 15. Chord voicings from Ex. 178.

It will be clear that the most fruitful cardinal triads from which to derive new voicings by this method will be the ones with bass-note on ③; the lower the bass-note string, the fewer notes there are below it to change the inversion. However, we may also derive new voicings by starting with cardinal triads with bass notes on the lowest strings and **doubling** notes above them. As a general rule, you can double any note using this method but you should avoid doubling the third in first-inversion

chords. For example, beginning with cardinal first-inversion D+ triad bass-note on ④, you may add a first ledger-line A on ①. This yields a first-inversion chord with a doubled fifth which can be included or omitted as context dictates. There is even at least one possibility with bass-note ③ triads; beginning with an E+ root-position cardinal triad bass-note ③, you may add the fret XII E upper root note, and finger the two lower notes with a partial barre. The resultant chord has no fifth but is a very commonly used voicing. Exercise 180 explores this method of derivation.

Ex. 180. Create new chord and triadic voicings by adding notes above the cardinal triads.

Even with full use of all of these specific methods for chord derivation, not all possibilities will be discovered. The use of open notes, in the bass especially, can be of great value in creating voicings. The open A, for example, can serve as the root note of A+, the bass note of a second-inversion chord with root D and as the bass note of the F+ sonority in first-inversion. Figure 16 shows some possibilities.



Figure 16. Voicings using the open A ④.

It is notable that while the open bass strings provide a great benefit in this way, they are also culpable in one of the unfortunately obvious limitations of the guitar: the inflexibility of key and the resulting restrictions on modulation. Because the three bass strings are tuned to E, A and D, they all become unusable as open

notes if the key signature has three flats or more and disappear one by one as flats are added to the key signature. Some examples from the vast repertoire from the common-practice period shows that it is not impossible for the guitar to function in flat keys but it is certainly more difficult technically, so much so that rudimentary performance expectations can become excessively challenging.

To summarize, there are several effective systems for deriving chord voicings on the fretboard starting with the basic cardinal triads and dilated forms and doubling or omitting notes according to a few simple rules. Earlier, we also examined the derivation of common chords and of cadence chords which we then used in simple cadential formulas. These must also be counted as indispensable tools in the work of harmonization. Beyond these systematic options, the fretboard practitioner's creativity and knowledge of chord structure will be a most important resource in deriving alternative chords voicings and creating effective harmonizations. We will come to use all these resources when we encounter figured basses in the next chapter.

Dominant and Diminished 7th Chords

The Dominant 7th Chord

A dominant 7th sonority is comprised of a major chord with a minor 3rd added to the top – a minor 7th from the root – and is most often constructed on $\hat{5}$, the dominant, of a major or harmonic minor scale (see figure 17). The dominant 7th is an unstable sonority in that it seems inexorably to require resolution to a tonic chord (or less commonly to the sub-median chord in a *deceptive* resolution). The progression, V7- I, is one of the most fundamental progressions in the Western musical tradition.



Figure 17. Structure of the dominant 7th.

The dominant 7th chord in common-practice music must be thought of as belonging to a key. The dominant 7th of F⁺, for example, is built on the fifth degree of the scale:



The same chord spelled in the same way is built on the fifth degree of the parallel minor scale, F⁻:



The raised $\hat{7}$ that we find in the harmonic minor scale allows, among other things, for the dominant 7th sonority - a major triad with a minor 7th added - to logically exist in the minor mode.

The instability of the dominant 7th is due to the presence of a tritone in the chord. The resolution of this tritone to an interval in the following chord provides some of the musical tension and release that is at the dramatic core of common practice music.

Playing Dominant 7th Chords

A root-position cardinal dominant 7th chord would have the four notes arranged neatly in order with root under third, fifth and seventh. There are few such dominant 7ths available on the fretboard. Some of them are shown in figure 18.

V7 of B+/- V7 of D+/- V7 of G_b+/-

Figure 18. Cardinal dominant 7th chords available on the fretboard.

Ex. 181. Play the cardinal root-position dominant 7th chords available on the fretboard as illustrated in figure 18. Are there any other such chords available (hint – there is one available using E on ⑤ as the root)?

The dominant 7th is almost invariably played in dilated voicings or in voicings with the fifth omitted. The *tritone dilation* is achieved by placing the 3rd and 7th an octave higher in the chord. This is possible for chords with roots on ⑥, ⑤ and ④. There are also workable voicings omitting the fifth for chords with roots on ⑥, ⑤, ④ and ③. There are also alternatives using all four notes for chords with roots on ⑥ and ⑤. Examine and experiment with Chord Chart 12 which shows these possibilities. Other possible but less viable voicings can be discovered.

Ex. 182. Play at least three different voicings of the dominant 7th chord in the keys of C-, D+, F-, G+ E+, B- and B \flat +. Take note of the position of the tritone in each chord.

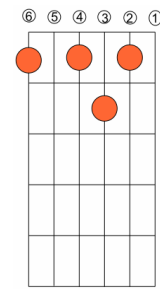
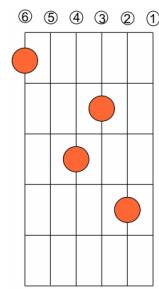
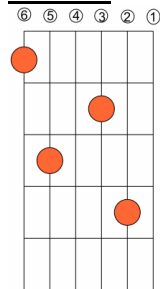
Chord Chart 12
Root-position Dominant 7th Chords

Tritone dilation

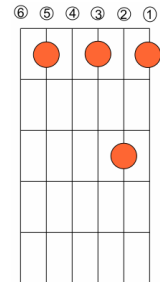
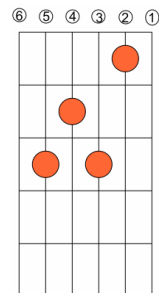
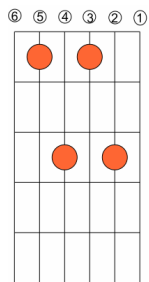
Fifth omitted

Alternative

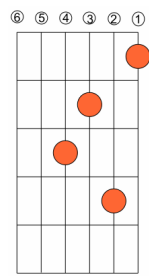
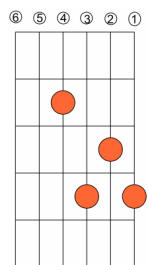
Root ⑥



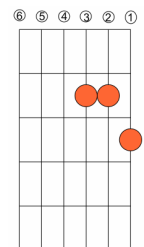
Root ⑤



Root ④



Root ③



Doubling

The roots and fifths of dominant 7th chords may be doubled while the thirds and 7^{ths}, as active notes requiring resolution, must not be.

Ex. 183. Experiment with doubling notes using the dominant 7th forms in Chord

Chart 12. Add chord tones above the given root.

Inversions of the Dominant 7th

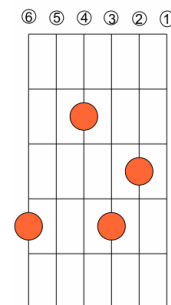
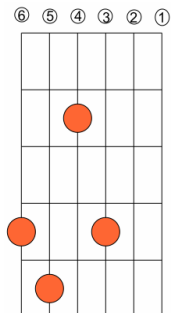
As a four-note chord, the dominant 7th can exist in four states; the root-position and first, second and third-inversions. Inverted dominant 7th chords with bass-notes on ⑤ and ⑥ may be played with all four notes present in adjacent string forms but generally the dilated forms provide more satisfying voicings. Only adjacent string forms exist for inverted dominant 7th chords with bass-notes on ④. Examine Chord Charts 13, 14 and 15.

Chord Chart 13
Inversions of the Dominant 7th – Bass-note ⑥

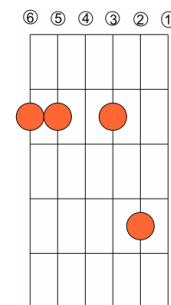
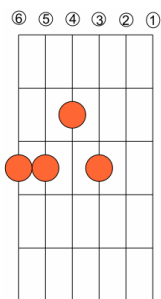
Adjacent strings

Dilated

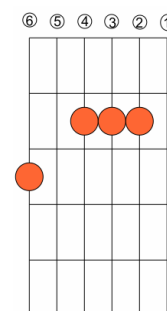
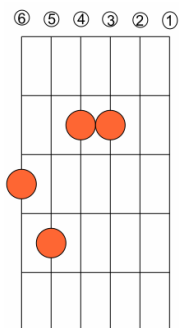
First inversion



Second inversion



Third inversion

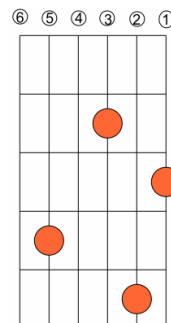
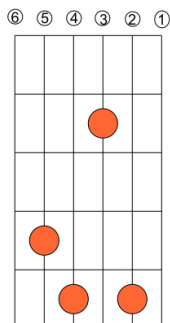


Chord Chart 14
Inversions of the Dominant 7th – Bass-note ⑤

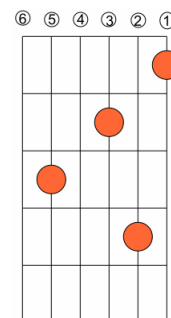
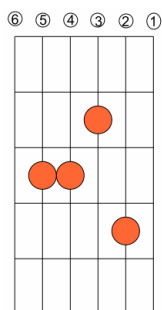
Adjacent strings

Dilated

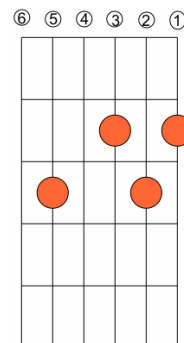
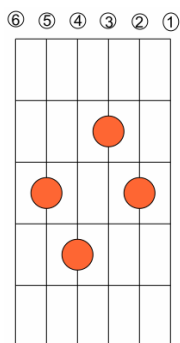
First inversion



Second inversion



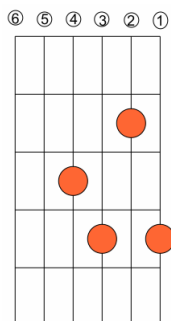
Third inversion



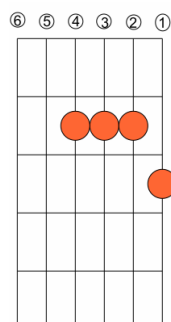
Chord Chart 15
Inversions of the Dominant 7th – Bass-note ④

Adjacent strings only

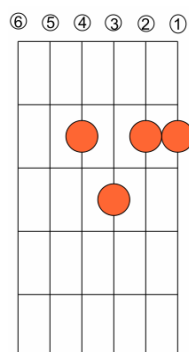
First inversion



Second inversion



Third inversion



Ex. 184. Choose a note on \textcircled{C} . Use that note as the bass note of dominant 7th chords in first, second and third inversions. Note the position of the tritone in each chord produced.

Ex. 185. Repeat Ex. 184 choosing notes on \textcircled{C} , then on \textcircled{D} .

The Diminished 7th Chord

The diminished 7th chord is comprised entirely of minor 3^{rds} assembled on top of one another forming a chord with an ostensible root, a minor 3rd, a diminished 5th and a diminished 7th. It appears as the 7th chord on the leading tone ($\hat{7}$) degree of harmonic minor scales (see figure 19).

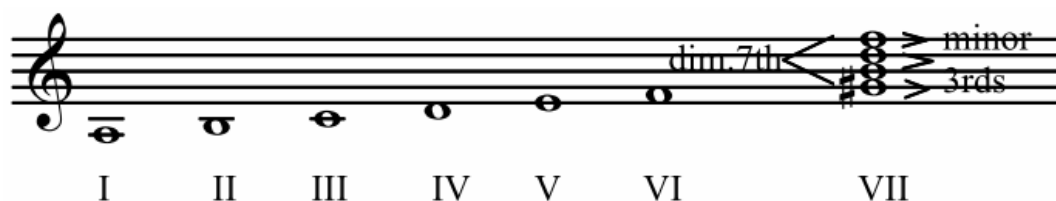


Figure 19. The diminished 7th chord

The diminished 7th chord is used widely in common-practice music because its properties allow composers to modulate easily. Consider the process shown in figure 20. Starting with a root-position diminished 7th chord on G# spelled G#-B-D-F (a) and inverting to first inversion gives a chord spelled B-D-F G# (b). This chord can then be respelled as B-D-F-A \flat , a root-position diminished 7th chord with root B.



Figure 20. Inversion of the diminished 7th chord

This same result holds true for second and third inversions. The conclusion is that *any note of the diminished 7th triad can be taken as the root*, and inversion is essentially meaningless for this chord. Because it is associated with the leading tone ($\hat{7}$) of the scale it functions as a dominant chord. It can therefore resolve satisfactorily in four different ways and lead to four different key areas.

Playing the Diminished 7th Chord

The diminished 7th chord may be played with all four notes present on adjacent strings but like the dominant 7th chord, the dilated forms are more satisfactory. Adjacent and dilated forms exist for chords with bass notes on ⑥ and ⑤ while only adjacent forms exist for chords with bass note on ④. Explore Chord Chart 16.

Similar to the situation we found with the augmented triad, the diminished 7th chord has a fascinating circularity in how the root-position and inverted forms of the chords are played on the fretboard. Start with the dilated F# diminished 7th chord bass note ⑥:



To invert this to first inversion requires no more than the extraordinarily simple shifting of the entire chord form a minor 3rd higher on the fretboard from I position to IV position, thus producing



. This chord can be respelled as



and this can be reckoned as root-position diminished

7th chord root A.

Ex. 186. Carry the process described above to the second inversion of the F# diminished 7th chord by shifting two minor thirds higher and respelling the chord to confirm it as a new root-position diminished 7th chord.

Ex. 187. Starting with the dilated C diminished 7th chord bass note ⑥ proceed to invert the chord and respell as shown in the discussion above.

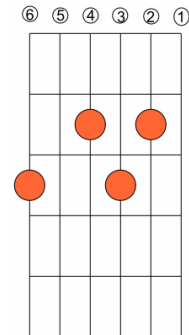
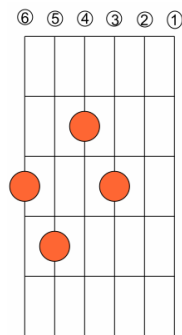
Ex. 188. Starting with the E diminished 7th chord bass note ⑥ proceed to invert the chord and respell as shown in the discussion above.

Chord Chart 16
The Diminished 7th Chord

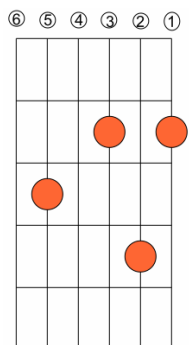
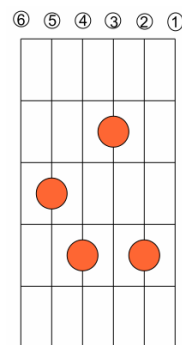
Adjacent strings

Dilated

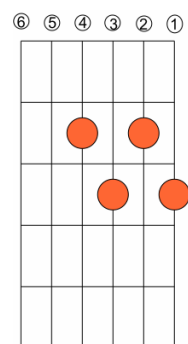
Bass-note ⑥



Bass-note ⑤



Bass-note ④



The Half-Diminished 7th Chord

The half-diminished 7th chord is comprised of a diminished triad with an added minor 7th above the root. It is the 7th chord found in the major scale on $\hat{7}$ and in the harmonic minor scale on $\hat{2}$. See Figure 21.

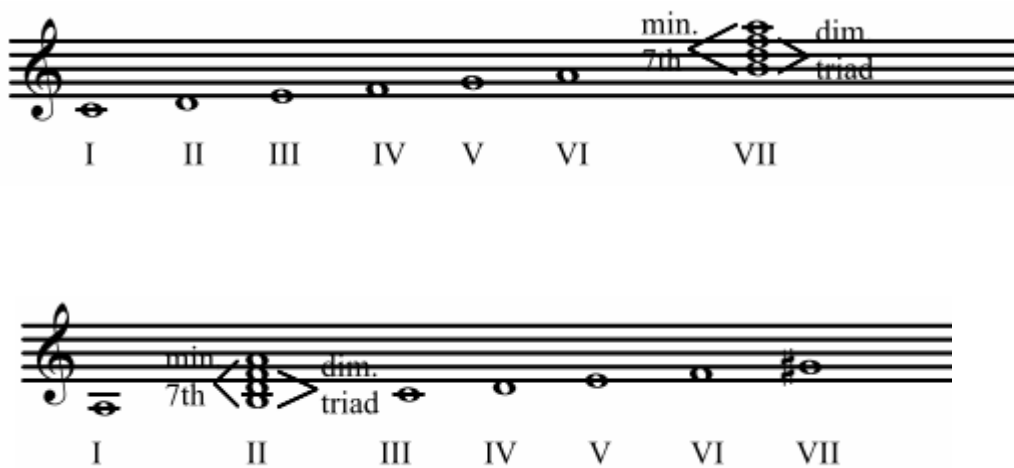


Figure 21. Half-diminished 7th chord structure.

Playing Half-diminished 7th Chords

Half diminished 7th chords can be produced compellingly simple way. Starting with any form of the diminished 7th chord, we simply raise *any* note of the chord and a half-diminished 7th chord is produced. See figure 22 where each note in succession from highest to lowest of the F# diminished 7th dilated chord, bass-note ©, is raised by a semitone. The new chord in each case is respelled as a half-diminished chord.

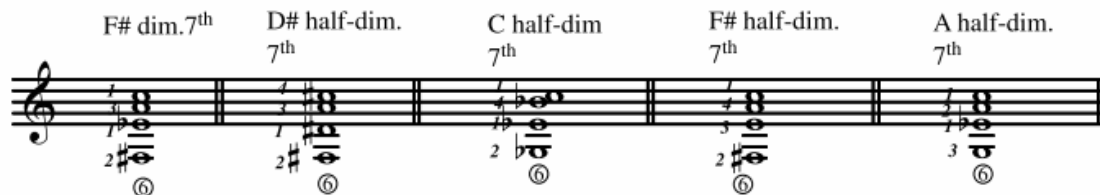


Figure 22. Raising each note of a diminished 7th chord by a semitone to produce half-diminished 7th chords

Ex. 189. Play the dilated voicing of the G diminished 7th chord root ⑥. Create four half-diminished chords from this chord using the process described above. Spell the resulting chords from root to seventh.

Ex. 190. Repeat Ex. 189 starting with diminished 7th chord voicings with bass-notes on ⑤ and on ④.

III-vi Figured Bass

As was briefly discussed in the introduction to inversion of triads, figured bass is a notational shorthand and performing practice that was used extensively in the 17th and 18th centuries. The term was not used by the performers and composers of the period but rather was created later by theorists to describe the notation and performance of the bass and accompanying parts of ensemble textures. These bass and accompanying parts comprised what was, in certain times and in some places, referred to as the *basso continuo*. It was notated as a single line in bass clef with numbers, or ‘figures,’ placed below the notes to indicate the intended harmony (see figure 23).

In practice, the continuo body of an ensemble consisted of a bass instrument along with other instruments which filled out the harmony according to the figures given. A single polyphonic instrument, such as a harpsichord, could have been used to perform a continuo part.

RECITATIVO. CORO II.

Oboe I.

Oboe II.

Viola da Gamba.

Tenore.

Organo e Continuo.

Mein Je_sus schweigt zu falsehen Lügen stil_le, um uns da_mit zu zeigen, dass

sein er_bar - - - mens_vol - ler Wil - le vor uns zum Lei - - - den sei ge - neigt, und

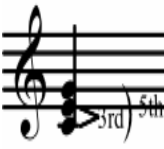


dass wir in dergleichen Pein ihm sol - len ähnlich sein, und in Ver - fol - - gung stille schweigen.

B. W. V.

Figure 23. A recitative from J.S. Bach's St. Matthew Passion, BWV 244, showing the continuo part, notated in figured bass.

Specifics of Figured Bass Notation

As discussed, inverting triads changes their internal interval structure. The first-inversion triad has the third as its lowest note and the second-inversion triad has the fifth as its lowest note:

Root position	First inversion	Second inversion
		
5 3	6 3	6 4

The figures indicated below the triads are a short-hand for the intervals contained in the chord. The root-position triad is very common and so no figures are given if this is the intended sonority. The first-inversion triad is comprised of a 3rd and a 6th above the bass and thus is abbreviated 6

3 . In practice, the interval of the 3rd is presumed and so the 3 is left out and the figure becomes simply “6”. The second-inversion chord is represented by the figure 6

4.⁴⁷ Different figures are used for indicating dominant 7^{ths}, diminished 7^{ths} and other 7th chords. Like in the triads, the figures for 7th chords are derived from their internal interval structures (see figure 24).

⁴⁷ Figured bass symbol with two or more numbers will henceforth be indicated in the text as fractions, for example, “6/4”.

root pos.	1st inv.	2nd inv.	3rd inv.
7	6	6	6
5 = 7	5 = 5	4 = 4	4 = 4
3	3	3 3	2 2

Figure 24. The interval structure and figures associated with 7th chords.

For the root-position 7th chord, the “5” and the “3” are omitted from the symbol, just as they are in indicating the root-position major triad or chord. The “7” then remains as the symbol. For the first-inversion 7th chord, the “3” is omitted, as it is in the first-inversion triad or chord. The symbol then is “6/5”. The second inversion of the 7th chord is abbreviated “4/3” and the third inversion “4/2.”

The mistaken presumption can easily be made that a “7” in a figured bass passage signifies that a dominant or diminished 7th is required. While the very common deployment of these chords dictates that this will often be the case, the “7” simply indicates the presence of a 7th above the bass in any chord. In (b) of figure 25 the 7th chord built on $\hat{6}$ of G+ is prescribed.

(a)	(b)
=	7 =

Figure 25. An instance of the use of the figure “7”.

The figured bass system also uses accidentals. A sharp (#) placed before a figure indicates that the note indicated should be raised a semitone. If the # appears without a number it can be assumed that it applies to the note a third above the bass.

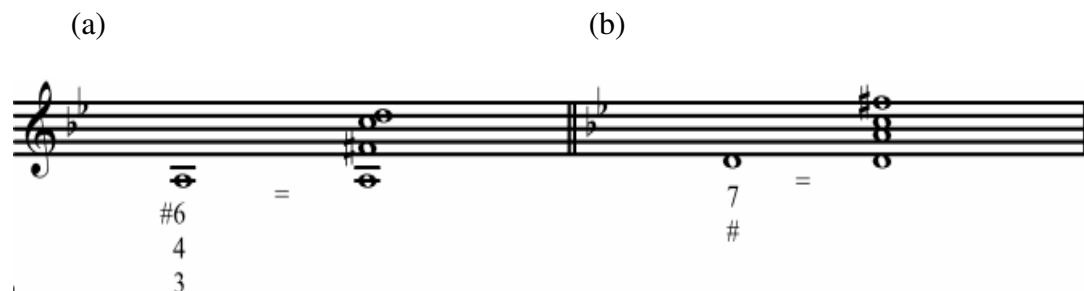


Figure 26. Use of accidental symbols in figured bass.

A ♭ placed in the same way indicates that the note in question should be lowered a semitone.

Realization of Figured Bases

It should be noted that some of the actual intervals present in the voicings given in fig. 24 are compound intervals. In (a) for example, the intervals in the realized chord are actually a 6th, a 10th and an 11th. The figures then, indicate the intervals that would exist if the chord was sounded with all notes within an octave. This is not, however, intended as a constraint on the performer. As we have seen, the most effective voicings we have derived, especially in the case of 7th chords, are the dilated forms, all of which have ranges larger than an octave. In realizing figured bass passages it is the connecting together of these forms that will ultimately yield the most satisfying musical result. Not only do the figures say nothing about octave disposition, but neither do they give any specific indication of doubling. They should not be taken to indicate that only one or only

two notes will appear above the bass. In typical continuo playing there will be several doublings of notes and in realizations for the fretboard there might be several chords of four notes. The system allowed for the short-form indication of intended harmonies but left the responsibility for the details in the hands of the performers.

While figured bass notation fell out of general use with the disappearance of the continuo, it has survived as a very useful didactic tool for the development of keyboard harmony skills. It is an equally valuable tool for developing the ability to fluently manifest common-practice harmony on the fretboard. The Baroque guitar was often used in the continuo body, a fact which lends historical precedent to modern fretboard realizations of figured basses. Several treatises written during the period provided instruction on playing figured basses, but they mostly taught the guitarist to translate the figures into what we have called “familiar” chords to be strummed or arpeggiated, without careful consideration of inversion or voice leading. This had less to do with negligence than with the nature of the Baroque guitar generally and its tuning specifically. There often would have been a bass instrument present to “correct” the voice leading. With the modern guitar it is quite possible to play both the bass line and the harmonies indicated by the figures thus realizing the passage as a soloist, similar to the way it could be realized on a harpsichord or piano.

Ex. 191 (a-d) requires the creation of multiple voicings for single chords indicated in figured bass notation. The first step is to determine the root and quality

of chord prescribed. This is done by examining the key signature and determining the root note of the prescribed chord by examining the figures. Figure 27 provides some examples. In example (a) the key is G+ or E-, the bass note is C and the figures indicate that the chord is in first inversion. The given C is therefore the 3rd

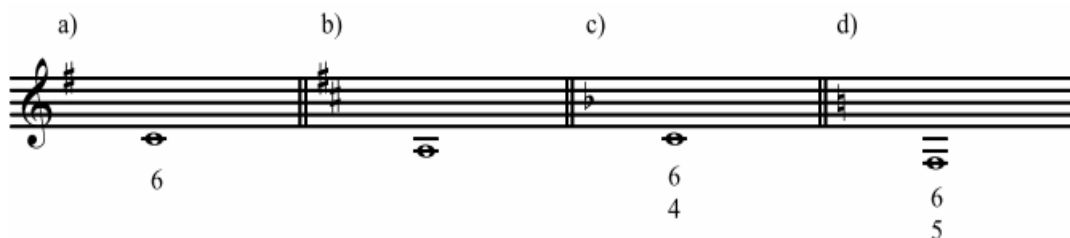


Figure 27. Single-note figured bass notations.

and A is therefore the root note. This chord then, is a first-inversion A- chord, the chord on $\hat{2}$ of G+ or $\hat{4}$ of E-. In example b), the key is D+ or B-, the bass note is A and no figures are given. The chord is in root position and the root note is A. It is therefore an A+ chord, the chord of $\hat{5}$ of D+. It cannot be a chord from B- as the note A does not exist in the harmonic form of this key (the leading tone of B harmonic minor is A#). By similar reasoning, example c) must be the I6/4 chord of F+, and in d) the chord is either ii6/5 of C+ or iv6/5 of A-.

Figure 28 shows a solution to Ex. 191a) with multiple samples of correctly realized bass.⁴⁸ Example a) is the cardinal triad of A minor, root $\textcircled{\text{C}}$. Example b) is the PD of the same chord while c) is an extrapolation of this voicing with the root doubled at the top of the chord. Example d) is the SD of the cardinal triad and e) is

⁴⁸ In adapting the notation for use on the guitar fretboard, the treble clef has been used in place of the bass clef.

the cardinal triad root ③ with the given bass note below it.

Given figured bass

Figure 28. Several possible realizations of a given figured bass.

Now proceed to Ex. 191 (a-d). One strategy for creating different voicings is to place different chord tones in the soprano voice.

Ex. 191. Play several voicings of the following chords given in figured bass notation.

a)

b)

c)

d)

In Ex. 191 (e-g) it may be necessary to change the octave of the bass note to obtain more than one voicing. Also, be sure to try the bass note on different strings if possible; the resulting voicings may be the same in some cases, but the exercise is valuable nonetheless as it helps develop flexibility of fretboard positioning and, ultimately, more possibilities for refined voice leading.

e)

f)

g)

Ex. 192 explores the realization of actual figured bass passages with root-position chords. It gives three different basses each with two different suggested starting soprano notes so that two different realizations can be created for the same bass passage. *Try to harmonize primarily in three voices – you may include four-note chords but try to ensure that you are not playing parallel 5^{ths} and octaves as a consequence of doing so. The highest voice should move primarily in the opposite direction from the bass, and in general all voices should move as little as possible. For this exercise, all voices should move in the same rhythmic values.*

Ex. 192. Realize the following figured basses.

a)

b)

c)

d)



Ex. 193 gives figured basses using inverted chords. These too are to be realized primarily in three voices. Remember to avoid doubling the third in first-inversion chords, try to keep all voices moving as little as possible and have the soprano voice move opposite to the bass when possible. Starting soprano notes are suggested.

*Ex. 193. Realize the following figured basses.*⁴⁹



⁴⁹ Arthur A. Heacox, *Keyboard Training in Harmony* (Boston: Arthur P. Schmidt, 1917). Exercise 190 parts a through f are adapted from basses given in Part I, Chapter I.

c)

6 6 # 6 6 6 6 # 6

d)

6 # 6 6 6 6 6 # 6

e)

6 # 6 6 6 6 # #-----

f)

6 # 6 6 6 6 # #-----

g)

6 6 4 6 6 # 6 6 4

h)

6 6 4 6 6 # 6 6 4

III-vii: Chord Progression Part I

The Dominant Chord


The progression of harmonies in common-practice music generally follows a dramatic arch of increasing tension followed by a release. After the establishment of the tonic chord at the beginning of a phrase, the harmony progresses to a pre-dominant sonority and then reaches peak tension at the dominant chord. The dominant chord must, in a sense, resolve to release the tension.

All diatonic chords function as either tonic, pre-dominant or dominant harmonies. The necessity of following the tonic/pre-dominant/dominant/tonic pattern therefore determines the order of individual chords as they appear in a passage of music. Any of the functions in a progression can be prolonged in a vast number of ways, and it is in this way that the predictability of the tonic/pre-dominant/dominant/tonic formula becomes a framework for creativity and listener engagement rather than a dramatic liability.


The dominant chord represents the essence of dramatic tension in common-practice music. The most rudimentary and essential chord progression is the dominant (V) – tonic (I) or dominant 7th (V7) – tonic (I) progression. The dominant or dominant 7th chord resolves to the tonic chord following specific rules. The third of the dominant chord is the leading-tone of the key and naturally resolves upward by a semitone to the tonic note in the tonic chord. The 7th of the V⁷ is the sub-dominant ($\hat{4}$) of the key and naturally resolves downward by a step to

the third of the tonic chord, the mediant ($\hat{3}$) note of the key. This is, in fact, a resolution of the tritone as discussed above in the section on intervals. The dominant 7th will contain an augmented 4th (which will resolve outward to a 6th) or a diminished fifth (which will resolve inward to a third) depending on the voicing of the chord. In progressions with both chords in root position, the bass notes will move in a root progression, the bass note of the V or V7 moving to the bass note in the tonic chord. Generally, any note above the bass in root-position dominant chords should move the shortest distance possible to a note in the tonic chord.


Figure 29 shows a number of dominant-tonic resolutions on the fretboard with brief comments on each example.

a)  Note that the third of the V chord (B) resolves upward to the doubled root of the I chord (C) and the 7th of the V7 chord (F) resolves to the third of the I chord (E).


V7 I

b)  The upper voices move as little as possible in resolving. The 7th, C, resolves downward to B and the A resolves upward to the same pitch. The fifth is omitted in this voicing.


V7 I

c)  The upper voices move as little as possible once again; the soprano voice stays on D, the 7th falls and the third rises, both by semitones.


V7 I

d)  The V6 also resolves to the root-position tonic chord.

V6 I


e)  Another possible resolution of the same dominant chord voicing. Here the middle voice note of the dominant chord (E) bifurcates and moves to the third (C#-E) in the tonic chord. All necessary resolutions are still satisfied.

V6 I


f)  A satisfactory resolution of a V6/5 voicing. Note once again that all voices move as little as possible in resolving. The common note (E) is maintained in the same voice while the tritone resolves to a major third.

V6/5 I


Figure 29. Dominant – tonic resolutions on the fretboard

g)  This is NOT a satisfactory resolution. The 7th of the V7 chord (D) does not resolve in the same voice and the tritone is therefore not properly resolved.

V6/5 I

h)  The V7 in second inversion also resolves to a root-position tonic chord.

V4/3 I

i)  The third-inversion V7 resolves to a I6 chord. This is a consequence of the necessary resolution of the tritone, here an augmented 4th, which resolves to a 6th in the tonic chord. The E in the alto also resolves to the D in the tonic chord. The soprano A could be doubled an octave lower in the resolved tonic chord.

V4/2 I

Figure 29 (continued). Dominant – tonic resolutions on the fretboard

Exercise 194 asks for several satisfactory resolutions of the dominant chord. Try situating the bass note on different bass strings to initiate different resolutions.

Ex. 194. Work out as many V – I resolutions as possible in the following keys:

***F+*, *D+*, *C+*, *D-*, *E+*, *G-*, *B-*.**

Ex. 195. Repeat Ex. 194 for V7 – I resolutions.

Ex. 196. Work out as many V6/5 – I resolutions as possible in the following keys:

***G+*, *E_b+*, *F#-*, *A-*, *D+*, *D_b+*.**

Ex. 197. Repeat Ex. 196 for V4/3 – I resolutions.

Ex. 198. Repeat Ex. 196 for V4/2 – I6 resolutions.

Ex. 199. Realize the following basses making certain to resolve the V and V7 chords properly.⁵⁰

(a)

Exercise (a) consists of two staves of music in G major, 4/4 time. The first staff contains four measures of bass notes with figured bass notation below them: $\bar{6}$, $\#$, $\begin{matrix} 4 \\ 2 \end{matrix}$, and $\begin{matrix} \bar{6} \\ 6 \\ \#6 \\ 4 \\ 3 \end{matrix}$. The second staff contains three measures: $\begin{matrix} 6 \\ 6 \\ 6 \\ 4 \end{matrix}$, $\begin{matrix} \bar{6} \\ \# \end{matrix}$, and $\bar{6}$.

(b)

Exercise (b) consists of two staves of music in G major, 3/4 time. The first staff contains eight measures of bass notes with figured bass notation below them: $\begin{matrix} 4 \\ 2 \end{matrix}$, 6 , 6 , $\begin{matrix} 4 \\ 3 \end{matrix}$, 6 , 6 , 4 , and 2 . The second staff contains eight measures of bass notes with figured bass notation below them: 6 , $\begin{matrix} 4 \\ 3 \end{matrix}$, 6 , 6 , 6 , 6 , 4 , and 6 .

⁵⁰ Heacox. Adapted from basses given in Part I, Chapter II, p.40.

Examine this possible realization of Ex. 199a:


It begins with the tonic expressed as secondary dilation A- with the fifth removed and an upper root note added. This is a common and successful voicing and leads by descending parallel 6ths to an SD E+ triad with root on ⑤. The V4/2 makes use of the available open D and progresses smoothly to i6 in the form of primary dilation A- in first inversion. A short left-hand shift with a finger 4 guide, positions the hand for formation of the V4/3 chord which in turn progresses to the tonic voiced in exactly the same way as the opening chord. From here, the ii⁰6 is played with a move to I position and it is possible to locate all the remaining chords there; SD first-inversion A-, cardinal D- in first inversion, cardinal A- minor in second inversion with a doubled fifth, PD E+ with a doubled root and PD A- , also with a doubled root, as the final tonic chord.


The Sub-Dominant Chord


The sub-dominant chord is built on the fourth degree of the scale. It is a major chord in major keys and a minor chord in minor keys.

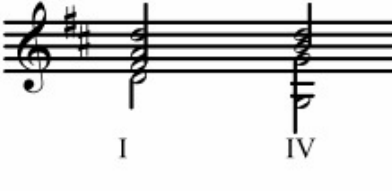
Ex. 200. Find and play several voicings, triadic and chordal, of the sub-dominant chord in all major and relative minor keys, starting on C+ and following the circle of fifths, i.e. C+, A-, G+, E-, etc.


Figure 30 explores some fretboard voicings of the tonic/sub-dominant progression.


a)  The soprano and tenor rise by step in this progression. The fifth is omitted from the IV chord.

b)  This is a similar progression in which the common note, here the G in the soprano, is maintained in the same voice.

c)  Here too, the common note is maintained. The bass and tenor voices of the tonic chord both move to the bass note G in this progression.

d)  In this similar progression the lower G is added in the IV chord and four actual voices are maintained.

e)  The common note is maintained in the same voice and the other voices move as little as possible in this progression.

f)  This is NOT a successful progression as it contains parallel perfect fifths in the tenor-bass.


 The fifth is omitted in this IV chord in this progression avoiding parallel fifths.

Figure 30. Tonic-Sub-dominant progressions.

The plagal cadence is a IV – I progression which closes a musical phrase such that there is a common tone between the two chords. This cadence is often associated with the harmonization of hymns, and its use allows the same pitch to be maintained over the two cadential chords as opposed to requiring the singing of a semitone. Exercises 201 through 208 explore the plagal cadence progression.

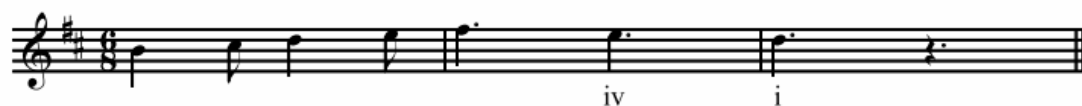
Ex. 201. Play the passage below adding a plagal cadence at the point indicated.

Discover at least two voicings for the cadence.



Ex. 202. Play the passage below adding a plagal cadence at the point indicated.

Note that alternative chord tones are used in the soprano voice. Discover at least two voicings for the cadence.



Ex. 203. Play the passage below adding a plagal cadence at the point indicated.

Note that a third alternative of chord tones are used in the soprano voice. Discover at least two voicings for the cadence.



Ex. 204. Create passages similar to exercises 201-203, including plagal cadences, in the following keys: E^- , E^+ , A^- , D^+ .

Ex. 205a. Play the following hymn harmonization.

Cressbrook; from the
Congregational Church Hymnal

R. Jackson

Ex. 205b. Play the last phrase as a single melody line ending with at least one other voicing of the plagal cadence. Change the soprano voice if necessary.

Ex. 206. Transpose Ex. 205b into E^+ , C^+ and $B\flat^+$.

Ex. 207a. Play the following hymn harmonization.⁵¹

From the Baptist Church Hymnal
("Treuer Heiland, Wir Sind Heir.")

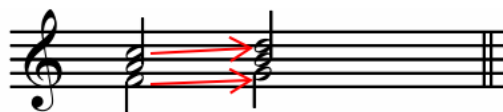
William Chatterton Dix. Adapted
from a tune by Conrad Kocher

⁵¹ Doug Anderson, *Hymns and Carols of Christmas*. Accessed 8 Dec. 2009, http://www.hymnsandcarolsofchristmas.com/Hymns_and_Carols/as_with_gladness_men_of_old.htm

Ex. 207b. Play the last phrase as a single melody line ending with at least two Different voicings of the plagal cadence. Change the soprano voice if necessary.

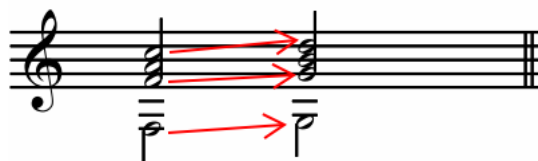
Ex. 208. Transpose Ex. 207b into E+, C+ and F+.

In most cadential passages the sub-dominant chord functions as a pre-dominant sonority. The progression IV – V, though harmonically essential, is potentially hazardous as it can easily lead to parallel fifths and octaves in the voice leading. This voicing



is very natural to the fretboard in any key

as it involves the simple whole-tone shifting of a cardinal major triad but it has obvious parallel fifths and this one,



though equally idiomatic, has both

parallel fifths and octaves. To avoid this, it is best to have the bass and soprano voices move in opposite directions. Revisit the cadence formulas explored earlier in the book and assess whether they address this issue (see pp. 113-121). For effective fretboard voicings it is possible and often necessary to omit the fifth or the doubled root note in the V chord. Ex. 209 gives some examples of solutions to this progression.

Ex. 209. Play and analyse the following IV – V progressions. Transpose them to the keys shown given the starting bass and soprano notes. Note: it is effective and sometimes necessary to omit the doubled root or the fifth of the V chord. The resolutions with omissions are shown circled.⁵²

The image shows three musical staves, each representing a different key signature. Each staff begins with a block chord texture consisting of two chords: the IV chord and the V chord. The notes are written in a treble clef. Below the notes are fingering numbers (1-5) and a 'P' for piano. The third measure of each staff shows a resolution where the root or fifth of the V chord is omitted, indicated by a red circle. The keys are: 1. D major (IV: G, V: D), 2. B minor (IV: F, V: C), and 3. E major (IV: A, V: B).

Ex. 210. Repeat Ex. 209 using the parallel minor key in each case.

Ex. 211. Play each of the following chord progressions in at least two voicings. Start with a block chord texture, varying the rhythm and then create arpeggio pattern exercises.

D+: I – IV – V – I

B-: i – iv – i – V – i

E-: i – i – iv – V – i

A+: I – IV – V – I

⁵² Lloyd. Adapted from Chapter X, ex.17d.

The sub-dominant can also successfully be used in first inversion. The progression $IV_6 - I_{6/4} - V$ is very commonly used. We will explore this progression in the course of discussing the cadential $I_{6/4}$ (see Ex. 217). IV_6 may also progress to IV .

Ex. 212. Play and analyze the following progression. Transpose it to the indicated keys given the starting bass and soprano notes. Notice the blend of three- and four-voice texture. This is commonly used and highly idiomatic.

The musical notation for Example 212 consists of two staves. The first staff shows a sequence of chords: I, IV₆, IV, I, V₇, I. The second staff shows a sequence of notes: 5, 6, 4, 6. The notes are circled and numbered.

IV_6 also progresses nicely to V_7 . The note in common between these chords should be maintained in the same voice.

Ex. 213. Play and analyze the following progression. Transpose it to the indicated keys given the starting bass and soprano notes.

The musical notation for Example 213 consists of two staves. The first staff shows a sequence of chords: I, IV₆, V₇, I. The second staff shows a sequence of notes: 6, 4, 5, 6. The notes are circled and numbered.

III-viii Harmonizing Melodies Part I

The primary task in harmonizing a melody is to decide what harmonies are implied. Some melodies are constructed using mostly chord tones and in these, the deducing of the harmonies is relatively simple (see fig. 31). Note how the harmony

Schubert: “Guitar” Quartet, first movement.

I V7 I V7 I V

Figure 31. A melody comprised almost entirely of harmonic chord tones.

changes at rhythmically significant points in the music, on the strong first and third beats. This *harmonic rhythm* almost invariably follows strong-beat patterns and sometimes is subdivided into faster values as the cadence occurs.

Next we will explore the process of harmonizing a melody with root-position primary chords I, IV and V or V7 by examining Ex. 214. The first step is to analyse the melody and decide on the harmony. Given that we are to harmonize this melody using only the primary chords, the harmony is relatively simple to determine. Similarly to the Schubert example, the melody notes are almost all part of the intended harmony. In m.1, the C notes make it very likely that the harmony is tonic at the beginning and for some, or all, of the bar; C is part of the tonic chord and also

part of the subdominant but it is at least very unlikely that the piece starts on the subdominant chord. The D-notes in m.2 imply very clearly that the harmony must be V since this chord is the only one among the primary chords that contains a D. In m.3, the notes are all part of the tonic harmony except the F which, because it appears

Ex. 214. Harmonize the following French folk melody, “Sur le pont d’Avignon” using root-position primary chords, I, IV and V:

The image shows two staves of musical notation for the French folk melody "Sur le pont d'Avignon". The first staff begins with a red box containing the number '1' above the first measure. Below the staff, four measures are marked with root-position primary chords: I, V, I, and V. The second staff begins with a red box containing the number '5' above the first measure. Below this staff, five measures are marked with root-position primary chords: I, V, I, V, and I. The melody consists of quarter and eighth notes in a 2/4 time signature.

only briefly, does not justify a change of harmony at a moderate tempo. Similar reasoning applies to m.4 where the only non-harmonic note is C. Notice in the closing measure how the harmonic rhythm, which had up to this point been made up of only whole notes, doubles in speed.

Once this analysis has been completed, start by playing the melody accompanied by block chords in the required harmony like in this example:

In mm.1, 3, 5 and 7 the melody is accompanied by cardinal root-position C+ triads for tonic harmony. In m.2, the primary dilation of G+ is used for dominant harmony and the D-note doubles as the melody note. In m.4, the first two beats are harmonized with a secondary dilation G+ for dominant harmony with B doubling as melody note. The next two beats are PD G+ on beat 3 and octave G's on beat 4 prolonging the already strongly established dominant harmony. The final bar has PD G+ with a doubled root followed by a root-position G+ with the fifth omitted. The final tonic chord also has the fifth omitted, though it could have been included in this instance. Note how the harmonization varies between three and four voices, and there is even one instance of only two voices being employed.

The next step is to experiment to create a more idiomatic fretboard texture similar to the one shown below. Note that the harmonization still uses only root-position chords. In m.1, the initial cardinal C+ triad is arpeggiated in the *Alberti Bass*

style. On beat 3, the melody note is left to stand alone, the harmony having been well established in the first two beats. The single bass-voice C in beat 4 affirms the continuation of the harmony and fills a beat left absent in the melody. A similar texture is used in m.2. In m.3, a more flexible harmonization is given than in the block-chord harmonization. In beat 1, the melody note acts as the essential third of the tonic chord. A single bass note C is used on beat 2 so that the F in the melody does not clash with an expected E in the accompanying voices. The E is re-introduced in beats 3 and 4 as the melody notes are other chord tones.

III-ix Chord Progression Part II

The 6/4 Chord

The I6/4 Chord in Cadential Progressions

The I6/4 chord appears very frequently in cadential progressions and when thus deployed is referred to as the cadential 6/4 chord. Although it is constructed using the notes of the tonic chord, its function is dominant.⁵³ The bass note of the

⁵³ Many theory texts refer to this as a V6/4 chord, but to avoid confusion with the passing 6/4, which appears between I and I6 and is discussed below, this book will use the labeling of I6/4 for the cadential 6/4 chord.

I6/4 chord is the dominant (V) note of the key, and the two remaining notes can be seen as a double appoggiatura resolving to notes in the dominant chord while the bass is held constant (see figure 32).

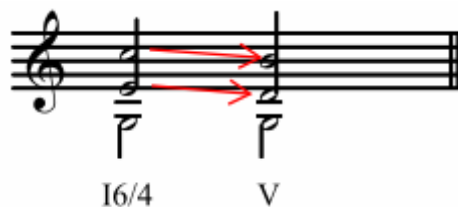


Figure 32. A resolution of the I6/4 chord.

The I6/4 can also resolve to the V7 (see figure 33).



Figure 33. Resolution of the I6/4 to V7.

The I6/4 chord usually appears following IV or some other pre-dominant chord. An example of this very common progression is shown in figure 34.

J.S. Bach: Prelude, BWV 998

The image shows a musical staff with a treble clef and a key signature of one sharp (F#). The progression of chords is: I6 (bass F, upper notes C, G), IV (bass C, upper notes F, A), I6/4 (bass F, upper notes C, G), V7 (bass C, upper notes F, A, D), and I (bass C, upper notes F, A).

Figure 34. The IV – I6/4 – V7 progression.

Ex. 215. Play the following progressions in the keys indicated.

G+: I – IV – I6/4 – V – I.

A+: IV – I6/4 – V7 – I.

A-: ii⁰6 – I6/4 – V – I.

Ex. 216. Transpose each of the examples above into at least two other keys.

Below are several examples of cadential progressions using the I6/4 chord in idiomatic fretboard textures from the works of Mauro Giuliani (1787-1829). After playing these examples, revisit Exs. 215 and 216 and try the same chord progressions experimenting with various textures.

Giuliani: Op.50, no.1



I6/4 V I

Giuliani: Op.50, no.11



I6/4 V I

Giuliani: Op.51. no.1

I6/4 V I

Giuliani: Op.57, no.3

i6/4 V i

Giuliani: Op.100, no.6

i6/4 V i

Giuliani: Op.100, no.12

I6/4 V I

Ex. 217. Play and analyze the following progression. Transpose it to the indicated keys given the starting bass and soprano notes.

I IV6 I6/4 V I

The Passing and Neighbour 6/4 chords

Another very common use of the 6/4 chord is as a passing dominant sonority between the root-position tonic and its first inversion:



The 6/4 chord is also commonly used as a prolongation of the tonic in the progression I – IV6/4 – I:



Ex. 218 explores figured basses which include the passing, neighbour and cadential uses of the 6/4 chord.

Ex. 218. Realize the following figured bass passages.⁵⁴

(a)



⁵⁴ Heacox. Adapted from Part I, Chapter 14, p.16.

(b)

Musical notation for exercise (b) in G major, 3/4 time. The melody consists of the following notes: G4, A4, B4, C5, B4, A4, G4, F#4, E4, D4. The notes are harmonized with the following chords: G6, G6, G6, G6, G7, G6, and G6. Fingering numbers are indicated below the notes: 6, 6, 6, 6, 7, 6, 6.

(c)

Musical notation for exercise (c) in G major, 3/4 time. The melody consists of the following notes: G4, A4, B4, C5, B4, A4, G4, F#4, E4, D4, C4, B3, A3, G3. The notes are harmonized with the following chords: G6, G6, G6, G6, G6, G6, G6, G6, G6, G6, G6, G6, G6, and G6. Fingering numbers are indicated below the notes: 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6.

III-x Harmonizing Melodies Part II

All melodies in Exercise 219 may be harmonized with root position I, IV, I6/4, V and V7 chords. Follow processes similar to the one outlined for Exercise 214 and create effective, idiomatic harmonizations.

Ex. 219. Harmonize the following melodies using I, IV, I6/4, V and V7 chords.

Musical notation for exercise (a) in G major, 4/4 time. The melody consists of the following notes: G4, A4, B4, C5, B4, A4, G4, F#4, E4, D4, C4, B3, A3, G3. The notes are harmonized with the following chords: G6, G6, G6, G6, G6, G6, G6, G6, G6, G6, G6, G6, G6, and G6. Fingering numbers are indicated below the notes: 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6.

b)

c)

d)

e)

The image displays five musical exercises, labeled b) through e), each consisting of two staves of music. Exercise b) is in G major, 4/4 time, featuring a melody of eighth and quarter notes. Exercise c) is in D major, 4/4 time, featuring a melody with dotted rhythms and eighth notes. Exercise d) is in G major, 2/4 time, featuring a melody of eighth and quarter notes. Exercise e) is in G major, 4/4 time, featuring a melody with eighth and quarter notes, including some chromatic movement.

When comprised primarily of chord tones, melodies will have a contour with many skips. One significant challenge of more complex melodies is learning how to manage stepwise movement. Ex. 220 examines some solutions to this challenge.

Ex. 220. Play and analyze the following harmonizations of stepwise melodic passages:⁵⁵

(a) For scale degrees 1-2-3 and 3-2-1:



(b) For scale degrees 3-4-5:



(c) For scale degrees 5-4-3:



d) For scale degrees 5-6-7-8:



e) For scale degrees 5-4-3-2:



⁵⁵ Lloyd. The discussion of harmonizing stepwise motion and the examples in Ex. 220 are adapted from Chapter XI, ex. 1.

Ex. 221. Harmonize the following melodies containing stepwise motion using I, IV, I6/4, V and V7 chords.

(a)

Two staves of musical notation in G major (one sharp) and 4/4 time. The melody consists of 12 measures of stepwise motion. The notes are: G4, A4, B4, C5, B4, A4, G4, F4, E4, D4, C4, B3. The first staff shows the melody with a final half note G4. The second staff shows the melody with a final whole note G4.

(b)

Two staves of musical notation in G major (one sharp) and 3/4 time. The melody consists of 12 measures of stepwise motion. The notes are: G4, A4, B4, C5, B4, A4, G4, F4, E4, D4, C4, B3. The first staff shows the melody with a final half note G4. The second staff shows the melody with a final whole note G4.

Ex. 222. Harmonize the following melodies containing stepwise motion using I, IV, I6/4, V and V7 chords and their inversions.

(a)

Two staves of musical notation in G major (one sharp) and 4/4 time. The melody consists of 12 measures of stepwise motion. The notes are: G4, A4, B4, C5, B4, A4, G4, F4, E4, D4, C4, B3. The first staff shows the melody with a final half note G4. The second staff shows the melody with a final whole note G4.

Note that the E in the first full measure of this melody, the F# in m.2 and the D in m.3 are neighbour notes and do not necessitate a change in harmony. The B in m.3 and the final E in m.4 are passing tones and similarly do not require a change in harmony.

(b)



The E in m.4 of this melody may be harmonized with a tonic chord but may be more effectively treated as a suspension resolving to D#. If this latter choice is made, the harmony would change from tonic to dominant on the second beat of the bar and a chord form omitting the third would be necessary. Another possibility would be to use the cadential 6/4 chord to harmonize the E and resolve to V or V7 on the D#.

III-xi Chord Progression Part III

The Supertonic Chord

The supertonic triad is built on the second degree of the scale. It is a minor chord in major keys and a diminished chord in minor keys. It functions as a pre-dominant harmony, coming before the I⁶/4 chord or immediately preceding the V chord: ii – I⁶/4 – V – I or ii – V – I. It usually appears in first inversion. The bass note of ii⁶ is the same as the bass note of IV and this affirms its pre-dominant function. The two chords only differ by one note: in the key of C+, IV is F-A-C and ii⁶ is F-A-D. The supertonic, then, is often found in cadential progressions. On the fretboard, the ii⁶ is easily derived by starting with the root position IV (or iv) chord and raising the fifth of the chord a whole-tone to form ii⁶ (or ii⁰6).

Ex. 223. Harmonize the following melodies using the chords indicated.

(a)

(b)

(c)

(d)

Ex. 224. Harmonize the following figured basses which contain the ii6 or ii⁰6 chord.

(a)

Figure 1: Musical notation for exercise (a) in B-flat major, 4/4 time. The top staff shows figured bass notation with notes and figures: 6, 6, 6, 6, 6, 6, 6, 6. The bottom staff shows the corresponding harmonic realization with notes and figures: 6, 6, 6, 6, 6, 6, 6, 6.

(b)

Figure 2: Musical notation for exercise (b) in D major, 4/4 time. The top staff shows figured bass notation with notes and figures: 6, 6, 6, 6, 6, #6, 6, 7#. The bottom staff shows the corresponding harmonic realization with notes and figures: #6, #6, 6, 6, 6, #6, #6, #6.

(c)

Figure 3: Musical notation for exercise (c) in D major, 4/4 time. The top staff shows figured bass notation with notes and figures: 6, 6, 6, 6, 6, 7, 6, 6. The bottom staff shows the corresponding harmonic realization with notes and figures: 6, 6, 6, 6, 6, 6, 6, 6.

Examine this possible realization of Ex. 224b.

It begins with a highly idiomatic E- formulation, a PD triad, root ④, with the root lowered an octave and a fifth added in the soprano. This is followed by the $i\bar{6}$ wherein the soprano has remained on B and the bass has moved upward by a third. The resulting chord requires an extended left-hand position but leads well to the $ii^0\bar{6}$, a PD first-inversion diminished triad using the available open ⑤ as the bass and doubling the third in the soprano to create satisfactory melodic motion. Next is an easy transition to iv , where the partial barre is maintained forming a PD A- triad with open bass note and the melody moved higher by a third. The result of using this melody note is that the subsequent chords can be formed with a soprano voice in descending stepwise motion until the end of the passage. The $V4/3$ voicing in m.3 is satisfactory, spanning more than two octaves in conformity with the opening sonorities. By the arrival at the VI chord, the deceptive resolution of the preceding $V7$, in m.5, I position has been reached and the remainder of the passage is harmonized using common voicings; the familiar A- known to all guitarists (a cardinal second-inversion triad with added open bass note) as the A- in m.6, (note the resolution of the tritone in the soprano-alto from the preceding $V4/3$), SD $F\#^0$ in

first inversion as the $ii^{\circ}6$, cardinal E- with an added fifth in the bass, cardinal B+ root $\textcircled{5}$ with added root in the soprano as the dominant chord passing through V7, and cardinal root position E- with the added open $\textcircled{6}$ bass note and the fifth omitted.

The supertonic is very often prescribed as a 7th chord in inversion. In major keys it is a minor-minor 7th chord and in minor keys it is a half-diminished 7th. For fretboard purposes, it may be helpful to think of $ii6/5$ (or $ii^{\circ}6/5$) as root-position IV (or iv) chord with a 6th added to the chord.

Ex. 225. Harmonize the following figured basses which contain the $ii7$ or $ii^{\circ}7$ chord.⁵⁶

(a)

Figured bass notation for exercise (a):

Staff 1 (C major):

- Measure 1: $\bar{6}$
- Measure 2: $\bar{6}$ / 4
- Measure 3: $\bar{6}$ / 4
- Measure 4: $\bar{4}$ / 3
- Measure 5: $\bar{6}$ / 4
- Measure 6: $\bar{6}^{\#}$ / 4
- Measure 7: $\bar{6}$ / 4
- Measure 8: $\bar{6}$ / 4

Staff 2 (C minor):

- Measure 1: $\bar{6}$ / 5
- Measure 2: $\bar{6}$ / 4
- Measure 3: $\bar{6}$ / 4
- Measure 4: $\bar{\#4}$ / 2
- Measure 5: $\bar{6}$ / 4
- Measure 6: $\bar{\#6}$ / 4
- Measure 7: $\bar{6}$ / 3
- Measure 8: $\bar{6}$ / 4

(b)

Figured bass notation for exercise (b):

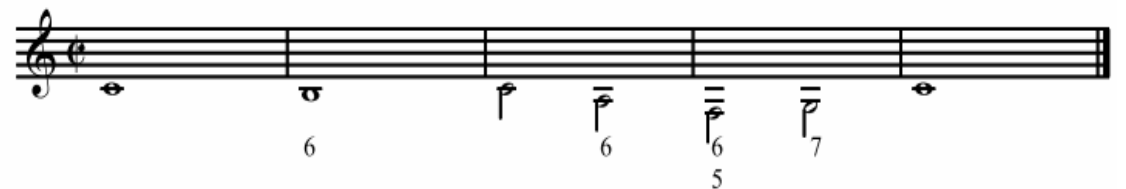
- Measure 1: $\bar{6}$ / 5
- Measure 2: $\bar{\#6}$ / 5
- Measure 3: $\bar{6}$ / 4
- Measure 4: $\bar{6}$ / 5
- Measure 5: $\bar{6}$ / 4
- Measure 6: $\bar{\#4}$ / 2
- Measure 7: $\bar{6}$ / 4
- Measure 8: $\bar{6}$ / 4

⁵⁶ Heacox. Ex. 225 c and d are adapted from Part II, chapter 3, p.60.

(c)



(d)



Examine these two possible solutions to Ex. 225a. This first one is played mostly in I position:



It begins with the familiar A- formulation and then gestures to the upper neighbour IV6/4 which is a SD D- triad, bass note $\textcircled{5}$, with added fifth. The $\text{ii}^{\circ}4/3$ on beat 1 of m.2 is played with the available open notes D and B in a familiar and resonant voicing. The subsequent iv chord is, out of necessity, played with an omitted fifth, this being the only available practical chord voicing which avoids an ungainly leap in the soprano. It leads very well to cardinal second-inversion A- as the $\text{i}6/4$ and then onto V which is easily accessed using open E and B notes. In m.5, another strong voicing of the $\text{ii}^{\circ}7$ is employed using open strings. In the penultimate measure an

extra melody note is added in the soprano in the vacant second beat allowing a stepwise motion to the leading tone of the V4/3 chord. This placement of the leading tone in the soprano allows for an effective perfect cadence. The effect is further strengthened by the voicing of the last chord, a SD A- triad with added root in the soprano. This chord is a result of good voice leading in which the tritone in the V4/3 resolves outward, the bass moves by step and the tenor voice stays at the same pitch. Another way of conceiving this last chord is as a PD A- with added root and the fifth displaced down an octave reinforcing the tonic sonority by creating a perfect fifth with the bass. This voicing requires an extended left-hand position but is well within intermediate technical limits.

A second, alternative realization is:

Here, the starting soprano note directs much of this solution to a higher range on the fretboard. Because it is advisable to avoid large leaps in the melody, the bass note on beat 1 of m.2 must be raised an octave to first-space F. Any chord using the lower F along with a soprano note in the same pitch vicinity as the preceding ones, would extend the left-hand unreasonably. Fortunately, the contour of the bass line is not compromised by this change. From m.4 onward, much of the solution is played in

the VIII position region of the fretboard. Beat 3 of m.5 is a first-inversion SD triad, bass note ⑤, of D- which is followed by a SD second-inversion triad on the tonic. The following $i6/4$ is a PD triad which is employed to ensure a small leap upward in the melody. It is followed in turn by the $V4/2$ using the available open D (VII position is maintained over these two chords). The passage concludes with the same voicings of the final cadence but in this instance the chords are played in VII and V positions.

The Sub-median Chord

The sub-median triad is built on the sixth degree of the scale. It is a minor chord in major keys and a major chord in minor keys. The chord acts a substitute for the tonic. This is seen most explicitly in the *deceptive cadence*, where V resolves to vi (or VI) instead of to I (or i). Exercise 226 requires the playing of I – IV – V – vi cadences based on formulas studied earlier in the book. It is important to be aware of the potential hazard of parallel 5ths and octaves in moving from V to vi, similar to the movement from IV to V which we encountered in earlier exercises. Figure 35 shows some suggestions for the effective replacement of I with vi when modifying the cadence formulas to create deceptive cadences. Note how the fifth of the sub-median must often be omitted to avoid parallels.

Major key, root on ⑥

I IV V I I IV V vi

Major key, root on ⑤

I IV V I I IV V vi

Minor key, root on ⑥

i iv V i i iv V VI

Minor key, root on ⑤

i iv V i i iv V VI

Figure 35. Derivation of deceptive cadences from cadence formulas.

Ex. 226. Beginning in C+ and proceeding through the circle of fifths, play I – IV – V – vi cadences in all twelve major keys by substituting vi for I in the cadence formulas studied earlier in the book (Barre Chords and Cadence Formulas, p.113).

Apart from its use in the deceptive cadence, the sub-mediant often progresses to a pre-dominant harmony and then on to the dominant, i.e. vi – ii – V – I. Note that the roots of the chords in this particular sequence follow the circle of fifths, making this progression logical, natural and consequently pleasant to the ear. The ii chord can also progress to a cadential 6/4 chord and the 5th movement in the bass will be preserved.

Ex. 227. Realize this figured bass passage in two different voicings.

The musical notation shows a single staff in G major (one sharp) and common time. The notes are G, A, B, C, D, E, F#, G. Below the notes are figured bass symbols: 6, (vi, ii, V, I). A bracket above the notes from D to G is labeled "Circle of 5ths".

Ex. 228. Transpose the progression shown in Ex. 227 into G+ and A+.

Ex. 229. Realize this figured bass passage in two different voicings.

Circle of 5ths

(vi ii I^{6/4} V⁷ I)

Ex. 230. Transpose the progression shown in Ex. 229 into D+ and F+.

In minor keys, the supertonic is rarely used in root position. Because of the sequential root motion, the VI – ii⁰ – V – i progression will be occasionally found but the VI – ii⁰₆ – V – i is much more commonly used. The bass movement in the progression VI – ii⁰₆ is by 3rd rather than by 5th.

Ex. 231. Play and analyze these voicings of the VI – ii⁰₆ – V – i progression.

(a)

Descending 3rd

VI ii⁰₆ V I

(b)

Descending 3rd

VI ii⁰₆ V I

(c)

Descending 3rd

VI ii[°]6 V i

Ex. 232. Transpose the progressions in Ex. 231 into at least two other minor keys of your choice.

The Leading-tone Chord

The leading-tone triad is built on the seventh degree of the scale and is a diminished triad in both major and minor keys. It functions primarily as a dominant chord, often substituting for V, and usually occurs in first inversion.

Ex. 233. Harmonize the following figured basses which contain vii[°] chords.⁵⁷

(a)

6 #6 6

⁵⁷ Heacox. Adapted from Part I chapter 1, p.25.

(b)

Musical notation for exercise (b) showing a melody line with suggested chords below it. The melody is in G major (one sharp) and 4/4 time. The suggested chords are: #6, 6, #, 6, #, 6, #, and a final whole note chord.

*Ex. 234. Harmonize the following melodies incorporating the suggested chords.*⁵⁸

(a)

Musical notation for exercise (a) showing a melody line with suggested chords above it. The melody is in G major (one sharp) and 4/4 time. The suggested chords are: V6, vii°6, I6, I6/4, and V.

(b)

Musical notation for exercise (b) showing a melody line with suggested chords above and below it. The melody is in G major (one sharp) and 4/4 time. The suggested chords are: IV6, V6, I6/4, vii°6, I6, ii6, and I6/4.

⁵⁸ Heacox. Adapted from Part I chapter 1, p.26.

Examine this solution to Ex. 234b:

Following the opening SD A+ triad, the next note is harmonized, as suggested, as IV6 and the choice is made to place the bass note in the lowest possible register allowing the next harmonies, V6 and I, to unfold with full voicings. Because the G# in the V6 must resolve upward and the given melody note must be retained, the choice of higher bass notes would result inevitably in a two-note chord by the arrival of the tonic on beat three of m.2:

The melody notes in m.3 outline the sub-dominant chord and this harmony is chosen here with a change from root-position to first inversion on beat 3. Similarly, V is changed to V6 in beats 2-3 of m.3 after the I6/4 chord. The SD triad is used in both these instances as it creates efficient movement in the bass with the given soprano line. There has been an arrival in VII position by m.5 and the remainder of the harmonization resides in this region of the fretboard. The decision is taken to move the bass down an octave in m.5 which results in ascending stepwise movement in the bass voice until the final chord.

The Mediant Chord

The mediant triad is built on the third degree of the scale. It is a minor chord in major keys and an augmented chord in harmonic minor keys. Most theorists however, see the mediant as a major chord in minor keys where it is the relative major chord. Many even consider that the only legitimate occurrence of the augmented mediant chord in minor keys is almost always as $i6$ with a non-chord tone (which in isolation spells $IIIx$) that resolves upwards by semitone (see fig.36). The mediant chord typically progresses IV , to V , or to VI . It contains the 7th degree of the scale and may therefore be used to harmonize this note in a melody.

non-harmonic tone

i i6 ----- iv
(IIIx)

Figure 36. The $IIIx$ chord in minor keys as $i6$ with a non-harmonic tone.

Ex. 235. Harmonize the following figured basses which contain the mediant chord.⁵⁹

(a)

6 6 6 6
4

⁵⁹ Heacox. Adapted from Part I, Chapter 1, p.19.

(b)

Ex. 236. Harmonize the following melodies incorporating the suggested chords.⁶⁰

(a)

(b)

⁶⁰ Heacox. Ex. 236 a adapted from Part I, Chapter 1, p.20.

Examine this solution to Ex. 236b above:

The decision is taken to begin in IV position with a first-inversion cardinal triad of E+ made into a root-position chord by use of the open ⑥. The iii chord which follows is easily accessed in IV position with use of a barre creating a PD G#- chord in root position. The barre is then shifted ahead to V position to produce A+ with the 5th omitted so as to avoid parallel fifths with the preceding chord. The next melody note, E, is accommodated by a simple change of voicing using notes already available on the barre. The barre is then shifted further, to VII position to produce the V7 chord and the prescribed D# in the melody. The F# which begins the next bar is a non-harmonic tone and so the bass voice is maintained for two beats as it resolves into a SD C#- chord in IV position. A similar process is used in m.4. The solution has by this point returned to I position and the remainder is played in this region of the fretboard. In m.7, cardinal root-position and first-inversion triads alternate in the upper voices to accommodate the prescribed melody while the open ⑤ A-note provides the bass for the ii6 which prevails in these first three beats of the measure. The IV6 which follows is a SD A+ triad, bass note on ⑤, the I6/4 is similarly a SD triad but with a doubled fifth and the cadence is a very typical progression using a

barre chord at fret II with root on ⑤ for the V7 and a resolution to familiar E+.

Secondary Dominants

Any chord in a progression may be temporarily made to sound like a new tonic chord if it is preceded by its own dominant chord, dominant 7th chord, leading-tone or leading-tone 7th chord. This always necessitates temporary and limited alteration of the notes in the prevailing key. Play and examine fig. 37 part 'a'. In beat 2 of m.2, the chord of III has been altered by a raising of the 3rd, creating a major-chord sonority on E, the dominant of A. This is followed by an A- chord, the chord of vi, and a temporary V – I relationship is thus established between the two chords and vi sounds temporarily like the new tonic chord.

a)

C+: I V6 I I V of vi vi ii6 V I

(b)

C+: I V6 I I V of vi vi V6 of V V I

(c)

C+: I V6 I I V of IV IV ii6 V I

Figure 37. Secondary dominants.

In this process the E-major chord is a secondary dominant chord and the progression creates what is sometimes referred to as a *tonicization* of the vi chord.

Now play and examine fig. 37 part 'b'. Here the V of vi progression is maintained and another tonicization is added. The chord on beat 4 of m. 3 is altered by the raising of F to F#, creating a major chord root D which acts as a V chord to the G+ chord which follows. This creates another V – I relation between the two sonorities.

In part 'c' of figure 37, the tonic chord is altered on beat 2 of m.2 to become a V7 chord by the addition of B \flat . The chord thus becomes a secondary dominant of IV and a temporary tonicization of this chord occurs.

Ex. 237. Play the following chord progressions which include secondary dominants ("V of X" is abbreviated here to "V/X").

D+: I – vi – IV – V/V – I

G+: I – V7/ii – ii – ii⁶/5 – I6/4 – V – I

F+: I – iv – ii – I – V7/IV – IV – V7 – I

A-: I – V/iv – iv – ii⁰6 – i6/4 – V – i

B-: i – V – VI – ii⁰6 – V – V7/V – V – V4/2 – i6

Examine these solutions for the G+ example above. One possible solution is:

Four voices are used in each chord in a chorale-style harmonization. The first chord, G+, is played as a cardinal triad, root ⑤, with an added root in the soprano. From here, it is easy to play the V7/ii as a barre chord while remaining in VII position. The following chord, in which the V7 resolves to ii, is played with a significant left-hand shift to V position. It is a cardinal minor triad, root ④ with an open A bass note and an upper tonic added in the soprano, the latter being essential in order to resolve the

temporary leading tone. The fifth of this chord, which would normally be fourth-space E, is omitted so as to avoid the perception that the D, the 7th of the V7 of ii, moves upward rather than resolving downward to third space C as orthodoxy requires. The ii6/5 chord which follows requires an extended left-hand position and is played with a doubled third to maintain the four-voice texture. This, however, is problematic because of the parallel octaves which occur in the soprano-tenor in proceeding to the I6/4 chord. The I6/4 chord is a SD triad with a doubled 5th. The final two chords are a typical V-I cadence formula with barre chords as discussed in the section Barre Chords and Cadence Formulas starting on p.113.

The many left-hand shifts and the occurrence of parallel octaves are weaknesses in the above solution making further experimentation advisable. Examine this alternative:



Without any significant sacrifice in texture or resonance this solution addresses the flaws of the previous one. The opening chord may be played as a cardinal G+ triad, root ③, with an added root in the soprano. From here, a simple shift of one fret gives access to the V⁷ of ii, played with root on ④, and a further shift of one fret gives the ii chord, here with the fifth omitted but still accommodating the essential resolutions of leading tone and 7th. The ii6/5 may be played in I position

with a shift but without the necessity of extended left-hand positioning. The I6/4 is arrived at with ease by maintaining the 4th finger on G and omitting the doubling of the fifth. This also eliminates the parallel octaves which occurred in the previous solution. The use of the open D in the subsequent V chord, the omission of the fifth in the final tonic and the use of open B, make the execution of this cadence technically simpler and really no less sonorous than the preceding solution; even though fewer notes are used, the presence of open notes gives the voicings greater resonance.

Note that in both solutions the rhythms chosen are musically logical and harmonically functional. They are chosen so that the dominant sonorities are on weaker beats and the resolutions are on the accented beats which follow. There is also a limit to the rhythmic values used and a cohesive symmetry to the overall rhythmic content.

Ex. 238. Play and analyze the passage below from the Prelude by J.S Bach, BWV998. Notice the repeated tonicization of the IV chord. Bach often uses this sub-dominant inflection in the approach to the final cadence.

The image displays three staves of musical notation for a passage from J.S. Bach's Prelude in D major, BWV 998. The music is in 3/4 time and features a treble clef with a key signature of two sharps (D major). The first staff begins with a tremolo on the D5 note, followed by a series of eighth-note patterns. Below the staff, harmonic analysis is provided: D+ (D major triad), V7/IV (F#7 chord), and IV (G major triad). The second staff continues the eighth-note patterns, with analysis for V6/5/IV (F#6/5 chord) and IV (G major triad). The third staff concludes the passage with a final cadence, analyzed as V6/5/IV (F#6/5 chord) and IV (G major triad).

Ex. 239. Play and analyze the passage below from the Vingt-quatre leçons progressives, op. 31 by Fernando Sor. The composer writes a series of tonicizations using $vii^{\circ}7$ chord as the dominant first in three and then in four voices.

Andante allegro.

LEÇON XX.

A-: vii⁰7/V V vii⁰7/iv IV vii⁰7/III

III

vii⁰7/V V vii⁰7/iv IV vii⁰7/III

III

III-xii Modulation

Modulation is the process of moving from one key centre to another. The process can be gradual or abrupt, and the new key centre may be maintained for a broad section of the piece or only for a few measures. There are several ways to modulate. One frequently used method involves pivoting on a chord that is common to both keys.

Modulation by Pivot Chord

The A+ chord is I in the key of A+, IV in the key of E+, V in the key of D+, VI in the key C#- and III in the key of F#-. The chord can be used in a progression as a pivot between any of these keys, serving one function in the first key and another in the second. In fig. 38 we see the use of pivot chords in modulation to closely related keys. In example (a), the C+ chord on beat 1 of m.2 is the pivot chord acting as I in C+ and IV in G+. In example (b), the C+ chord on beat 1 of m.2 is the pivot chord acting as I in C+ and V in F+. Play these passages.

(a)

Example (a) shows a modulation from C major to G major. The first measure (m.1) contains three chords: C major (I), C major (I), and C major (I). The second measure (m.2) contains five chords: C major (IV), C major (I), D minor (ii6), E7 (V7), and C major (I). The C major chord in m.2 serves as the pivot, acting as IV in C major and I in G major.

(b)

Example (b) shows a modulation from C major to F major. The first measure (m.1) contains three chords: C major (I), C major (I), and C major (I). The second measure (m.2) contains five chords: C major (I), C major (V), D minor (ii6), E7 (V7), and C major (I). The C major chord in m.2 serves as the pivot, acting as I in C major and V in F major.

Figure 38. Modulation by pivot chord.

Ex. 240. Play the following progressions showing modulations by way of the underlined pivot chord.

(a) G: I – V^{6/4} – I⁶ – IV – I⁶

D+: IV⁶ – V – I – V⁷ – I

(b) A- : i – ii⁰6/5 – V – V⁷ – i – iv

D- : i – ii⁰6 – V – V⁷ – I

(c) B- : i – ii⁰6 – V – V⁷ – i

A+ : ii – ii⁶ – I^{6/4} – V – V^{6/5} – I

Examine this solution to Ex.240b:

The musical notation shows a sequence of chords in A- and D- positions. The chords are: i, ii⁰6/5, V, V⁷, i, iv, ii⁰6, V, V⁷, i. The first five chords are in A- position, and the last five are in D- position. The pivot chord is the i chord in D- position, which is the iv chord in A- position.

I position is used throughout most of the passage. The first chord is a PD A- with added root note an octave above the bass. This is followed by the ii⁰6/5 using open ④ and ②. The next measure begins with a technically simple transition to cardinal E+ with added root and then to V⁷ with omitted fifth, the open B from ② being eliminated when the 7th, D, is added. This omission also makes for an effective resolution to PD A-. A cardinal root position triad root ③ is added on the fourth beat of m.2. The pivot chord, common to both keys, is played as SD root-position D- with an added root, the familiar D- chord. Acting as tonic of the new key, it proceeds

easily to ii^0_6 using the open ① in the soprano voice. The final cadence is a perfect cadence with the 7-8 progression in the soprano voice. This is a strong progression despite the fact that the fifth is omitted from the final tonic chord. Unfortunately, no effective, technically realistic complete D- chord with its root in the soprano is available in this region of the fretboard.

Ex. 241. Modulate by way of pivot chord between the given keys. Play a short progression to establish the key then pivot on the selected chord, completing a logical progression in the new key from that point. Play the progression in a three- and four-voice block-chord texture.

(a) A+ to E +

A+ to D+

(b) C+ to F+

C+ to A-

(c) A- to D-

A- to C+

d) B- to D+

B- to G+

e) G+ to E-

G+ to C+

f) E+ to F#-

E+ to A+

Other Modulation Processes

Another process in modulation is the use of a common note especially on modulations to more distant keys. Figure 39 shows a modulation from C+ to A \flat +

Figure 39. Modulation by common note.

Ex. 242. Play the following passage from Giuliani's Grande Overture, op.61, which modulates from E+ to C+ by common note.

A third method of modulation derives from the ambiguous nature of the $\text{vii}^{\circ 7}$ chord, of which any note can be considered the root. Using any given diminished 7th chord can therefore lead by resolution to four different minor keys and, by a simple change of mode in the resolved chord, four different major keys. Consider for example, C# diminished 7th as shown in fig. 40. The inversion and respelling of the chord produces four different modulation possibilities.



Figure 40. The inversion and respelling of a diminished 7th chord.

Ex. 243. Play the following modulating chord progressions using the indicated chords as pivots from one key to the next.

D-: $\text{vii}^{\circ 7} - i - iv - \text{ii}^{\circ 6} - \text{vii}^{\circ 6/5}$

F-: $\text{vii}^{\circ 7} - i - V - i - \text{vii}^{\circ 6/5}$

A \flat -: $\text{vii}^{\circ 7} - i - iv - \text{vii}^{\circ 6/5}$

B-: $\text{vii}^{\circ 7} - i - \text{ii}^{\circ 6} - i6/4 - V7 - i$

Ex. 244. Play and analyze these examples of successful idiomatic modulation from Fernando Sor's *Vingt-quatre petites pièces progressives*, op.44.

(a)

N.º 4. *All.^o Mod.^{to}*

(b)

N.º 7. *And.^{te} Allegro.*

(c)

N. 10. Allegretto.

Andante

d)

N. 9. Andantino.

1^{re} fois.

2^{me} fois.

1^{re} fois.

2^{me} fois.

e)

Andante

N.º 16

f)

Cantabile

N.º 17.

g)

N^o 22. *Andantino.*

III-xiii Chromaticism

Chromaticism is the introduction of non-scale tones into a diatonic context. The degree of chromaticism can be very limited; the use of secondary dominants, discussed earlier in the book, is an example of a narrow chromaticism, comprising usually no more than one altered note in a progression. On the other hand, chromaticism may be extended to a point where individual harmonies become richly coloured, common-practice progressions become altered almost beyond recognition and tonal centres are difficult to discern. An extremely extended chromaticism developed in compositions of the late 19th and early 20th centuries and marked the end of the common-practice period.

Even within the common-practice period, harmony frequently tended toward

greater chromaticism. There were a number of chromatic alterations which became so frequently used that music theorists have labelled the resulting chords and recognized their particular harmonic functions. Two such sonorities are the Augmented 6th chords (Italian, French and German 6^{ths}) and the Neapolitan 6th.

Augmented 6th Chords

The nomenclature “Augmented 6th” is derived from the interval structure of these chords, all of which contain the interval of the augmented 6th. The simplest version of the chord is the Italian 6th. It occurs in both major and minor keys. It is built on the flattened $\hat{6}$ of the major scale and on the $\hat{6}$ of the minor scale with a major third and augmented 6th above the note. Figure 41 shows some typical voicings of the Italian 6th in C+ and C-. In playing these examples you will note that the chord sounds like a dominant 7th with the fifth omitted and can be easily respelled as such, but the function of the chord is in fact pre-dominant. It will appear in progressions near cadences but will most often proceed directly to V or to I6/4. For fretboard purposes, it may be helpful to think of the Italian 6th as a dominant 7th chord with the fifth omitted built on $\hat{6}$.



Figure 41. Italian 6th chords.

Ex. 245. Play two different voicing of the It6 chord in the following keys:

C+, G-, F-, B-, D+, A+, E-.

Ex. 246. Play the progression It6 – I6/4 – V7 – I in the following keys:

C-, D-, G+, F#- B-, A+.

Ex. 247. Play and analyse these passages containing Italian 6th chords.

Giuliani, Twelve Waltzes, op. 57, no.3.



D-: It6 V

Sor, Six Studio for the Spanish Guitar, op.6, no.9.



G-: It6 V

F+: It6 V

Giuliani, Grande Overture, op.61.

2
OUVERTURE
 Andante
 Sostenuto

Ex. 248. Play the following progressions:

D-: i – iv6/4 – i – ii06 – iv6 – It6 – V7 – i

E-: i – V6/5 – i – V/V – V7 – VI – It6 – i6/4 – V – i

G+: I – V/vi – vi – ii6 – It6 – V – V6/5 – I

Examine these solutions for the E- example in Ex. 248. One possible solution is:

The opening chord is a cardinal E- triad, root ④ with an added root in the soprano.

The next chord is the V6/5 resolving to the tonic, a SD E- in which the fifth has been omitted. The omission is necessary to avoid parallel fifths as the following V of V is also in root position. Played as cardinal F# +, root ④ with doubled root, this chord

also brings the left hand to second position better to reach the resolved chord, V7. A simple shift to third position with the 4th finger guiding results in the VI chord, a SD triad of C+ root ⑤, fingered with the available open G note. From here, the It6 is easily played by the use of a hinge barre to fret the A# on ③. The resolution to i6/4 and V then are easily achieved as shown. Note the idiomatic oscillation between three and four voices.

This solution can be elaborated easily by the addition of some passing tones in soprano and tenor voices:



These passing tones create some momentary sonorities that are not prescribed in the exercise: the V/V in m.1 becomes a 7th chord on the last eighth-note of the bar and in m.3, the It6 resolves to I6/4 only after chromatically passing through A \flat . Experimentation of this kind is a valuable tool for discovering effective gestures in fretboard practice.

The German 6th is exactly like the Italian 6th except that it contains a perfect fifth (or perfect 12th) above the bass note (see fig.42). For fretboard purposes, it may be helpful to think of the German 6th as a dominant 7th chord built on $\hat{6}$.



Figure 42. German 6th chords.

The following passage from the *Fantaisie Hongroise* by Mertz, shows a typical use of this chord.

It is important to make some effort to avoid parallel perfect fifths when going to V from Gr6. In the example above Mertz anticipates the movement in the upper voice to break up the fifths. The most common solution is to progress to V through the cadential 6/4. Another option is to omit the fifth in V and use a three-voice texture.

Ex. 249. Play two different voicing of the Gr6 chord in the following keys:

C+, G-, F+, B-, D-, A-, E+.

Ex. 250. Play the progression Gr6 – I6/4 – V7 – I in the following keys:

C-, D-, G+, F#-, B-, A+.

Ex. 251. Play the following progressions:

D-: i – iv6/4 – i – ii⁰6 – V4/2 – i6 – vii⁰6 – Gr6 – V7 – i

E-: i – vii⁰6 – i6 – V6/5/iv – iv – Gr6 – i6/4 – V – i

G+: I – IV6/4 – I – V/vi – IV – IV6 – Gr6 – I6/4 – V7 – I

Examine these possible realizations for the G+ example above. One effective solution is:

It begins in VIIth position and remains there for the entire first bar. The opening chords are SD G+, root ⑤, followed by the SD of IV6/4 which is a neighbouring 6/4 inflection. The bass note is simply held and not re-articulated, producing a more elegant texture. The return to SD G+ is followed by V/vi which then resolves deceptively to VI of vi, or IV in the prevailing key. The resolution of the tritone in the V/vi is easily achieved by shifting into a C+ barre chord at fret VIII. The omission of the 5th in the V/vi makes this a smooth technical progression and helps in the avoidance of parallel fifths. The Gr6 follows the IV6 and is played with root on ⑤ and the I6/4 which follows is a second-inversion SD triad of G with a doubled 5th using the available open D bass note. This common bass note is sustained, not re-articulated, and the V7 used here is a non-typical voicing of the chord but one which allows a stepwise motion in the melody and complies with the prescribed harmony.

Examine now this alternative solution:



This might be a typical result if the decision were taken to start with G on top of the staff as the first soprano note. It may be easily argued that the given opening chords are much more sonorous but ultimately, the melodic contour that necessarily results is less satisfactory. Note especially the repetition of G in soprano and the melodic diminished 4th in m.1. This latter is not technically necessary but is more pleasing to the ear than the alternative of arriving by upward step at the 7th of the V7/vi. The last portion of the solution features an arguably simpler left-hand fingering but a less resonant voicing of the final cadence with a second-line G, rather than the G one octave lower, as the final bass note. In any case, it is instructive to experiment with realizations starting on different soprano voice chord tones. It is a fascinating fact of fretboard conditions and limitations that it will often be that one starting point yields a better result than another.

The French 6th may be understood in relation to the German 6th. It is also made up of four essential notes except that instead of a perfect 5th, it contains an augmented 4th (see fig.43). For fretboard purposes, it may be helpful to think of the French 6th as a dominant 7th chord built on $\hat{6}$ with a flattened 5th.

Figure 43. French 6th chords.

Ex. 252. Play two different voicings of the Fr6 chord in the following keys:

***C+*, *G-*, *F+*, *B-*, *D-*, *A+*, *E-*.**

Ex. 253. Play the progression *Fr6 – I6/4 – V7 – I* in the following keys:

***C-*, *D-*, *G+*, *F#-*, *B-*, *A+*.**

Ex. 254. Play the following progressions:

D-*: *i – iv6/4 – i – ii⁰6 – V4/2 – i6 – vii⁰6 – i6 – Fr6 – V7 – i

E-*: *i – vii⁰6 – i6 – V6/5/iv – iv – Gr6 – i6/4 – V – i

G+*: *I – V/vi – vi – iv6 – Fr6 – V – V6/5 – i

Examine this solution to the D- example in Ex. 254 above:



It begins with the only practical voicing of D- with fourth-line D in the soprano voice.

The cardinal second-inversion G-, bass note $\textcircled{5}$, with doubled fifth is arrived at

conveniently by playing a barre chord at fret III while the bass note is held over from

beat 1. Another root-position voicing of the tonic chord (SD) follows by using a pivot

barre on fret I. The *ii⁰6* chord falls on beat one of m.2 by securing the barre over all six

strings at fret III. The following V4/2 chord maintains the bass note but it is re-fingered and the i6 chord arrives through essential resolution in the bass voice. The vii⁰6 chord is easily arrived at through shifting along the second string with a 4th finger guide and the return to i6 in the subsequent measure is simple. The Fr6 chord which follows can then be sounded by pivoting the barre to stop the fret I notes.

Ex. 255. Realize the following figured basses.

(a)

Figure 1: Musical notation for Ex. 255(a) in G major, 4/4 time. The staff shows a sequence of figured basses: G4 (barre), #6, 6, 6, 6, #, #6, 7, #, and G4. Fingerings are indicated by numbers 1-4.

(b)

Figure 2: Musical notation for Ex. 255(b) in E minor, 4/4 time. The staff shows a sequence of figured basses: 6, 6, 6, #4, 6, 6, #6, #, and a whole note. Fingerings are indicated by numbers 1-4.

Examine this possible realization for Ex. 255(b):

Figure 3: Musical notation for a realization of Ex. 255(b) in E minor, 4/4 time. The staff shows a sequence of chords: ii⁰6, V4/2, CII, ii⁰6, V4/2, ii⁰6, V4/2, and a whole note. Fingerings are indicated by numbers 1-4.

The opening chord is played with the fifth omitted so that the tonic note may be used in the soprano, and this in turn allows for initial stepwise movement in the melody. The ii⁰6 is played with finger 2 on the bass G-note, allowing the prolongation of this note while the barre is placed on fret II to form an effective voicing of the V4/2 chord.

This resolves to $i6$, which is given as PD first-inversion D-, bass note on ⑥. The tonic chord is reiterated in root position using fingers 2 and 3, leaving fingers 1 and 4 free to place the $iv6$ chord, a SD G- triad in first inversion, which follows on beat 1 of m.3. The $It6$ chord is easily accessed from here by pivoting into a barre to play the G# on ③. The final i chord is in the exact voicing as the opening chord and is the natural resolution of the V chord which precedes it.

Examine the passage below extracted from the Fernando Sor's op.6 in which augmented 6th chords change from Italian to German to French by the interweaving of a descending melodic line in the tenor voice.

Sor, Six Studio for the Spanish Guitar, op.6, no.1

D+: $It6$ $Gr6$ $Fr6$

Ex. 256. Realize the following figured bass.⁶¹

Ex. 257. Repeat Ex. 256 changing the Fr6 chords to Gr6 chords.

The Neapolitan 6th Chord

The Neapolitan 6th is another chromatically altered chord which functions as a pre-dominant sonority and consequently it is followed by the I6/4 or V chord. It is built on the flattened $\hat{2}$ of major or minor keys and usually appears in first inversion, making $\hat{4}$ its bass note and affirming its pre-dominant function.

Ex. 258. Play the following passage from “Le papillon,” op.50, no.17, by Giuliani, which contains a Neapolitan 6th chord.

⁶¹ Heacox. Adapted from Part II, Chapter 3, p.7.

Ex. 259. Play and analyze the following passage in which the N6 proceeds to a cadential 6/4. Transpose the progression of the final four chords into two other minor keys.

Chord progression for Ex. 259: i6, vii⁰6, i, N6, i6/4, V7, i

One of the notable characteristics of progressions involving the N6 harmony is the movement of $\flat\hat{2}$ descending to $\hat{7}$. This voice leading is clearly apparent when N6 progresses directly to V, and is especially dramatic when it appears in the soprano voice, like in Ex. 260.

Ex. 260. Play and analyze the following passage in which the N6 proceeds to V. Transpose the progression of the final four chords into two other minor keys.

Chord progression for Ex. 260: i, V4/2, i6, ii⁰6, i6/4, V, VI, N6, V, V4/2, i6

Ex. 261. Play and analyze the following passage in which the N6 proceeds to V7.

Transpose the progression of the final three chords into two other major keys.

I IV6/4 I vii06 I6 N6 V7 I

Ex. 262. Realize the following figured basses.

(a)

♭ #6 6 6 7 #4 6 #6 ♭
 4 3
 3 3

♭6 6 7 ♭ #6 ♭ 6 6
 3 4 # 5 5 5

♭ ♭ 6 ♭6 7 ♭

 3 3

(b)

Figured bass notation for three staves of music. The first staff contains 10 notes with figures: ♭, 4, ♭, 6, 6, 5, 4, 6, ♭, 5, ♭, 5. The second staff contains 14 notes with figures: 7-6, ♭, 6, ♭6, 7, #4, 6, 6, 6, 4, 4, 6, 4, 3, 6. The third staff contains 6 notes with figures: ♭6, 6, 4, 6, 9-8, ♭.

As a summary of our study of advanced common-practice harmony on the fretboard, this book concludes with several melody harmonizations and figured bass realizations taken mostly from the guitar literature.

Ex. 263. Harmonize the following melodies taken from the guitar literature.

a) N. Coste. Deux quadrilles;
Première quadrille, no.5.

Two staves of musical notation for a melody in G major, 2/4 time. The melody consists of 16 notes across two staves.

b) N. Coste. Deux quadrilles;
Deuxième quadrille, no.3.

Two staves of musical notation in treble clef, key signature of one sharp (F#), and 6/8 time signature. The first staff contains the first four measures of the exercise, and the second staff contains the remaining four measures. The melody consists of eighth and sixteenth notes.

c) N. Coste. Deux quadrilles;
Deuxième quadrille, no.5.

Two staves of musical notation in treble clef, key signature of one sharp (F#), and 2/4 time signature. The first staff contains the first four measures, and the second staff contains the remaining four measures. The melody features eighth and sixteenth notes.

d) N. Coste. Deux quadrilles;
Deuxième quadrille, no.1.

Two staves of musical notation in treble clef, key signature of one sharp (F#), and 2/4 time signature. The first staff contains the first four measures, and the second staff contains the remaining four measures. The melody is primarily composed of quarter notes.

e) N. Coste. Deux quadrilles;
Deuxième quadrille, no.2.

Two staves of musical notation in treble clef, key signature of one flat (Bb), and 2/4 time signature. The first staff contains the first four measures, and the second staff contains the remaining four measures. The melody consists of eighth and sixteenth notes.

vii^o6/vi vii^o7/V 16/4

f) La folia - Spanish
harmonic pattern.

Two staves of musical notation in G major and 3/4 time. The first staff contains the first six measures, and the second staff contains the remaining six measures. The melody consists of eighth and quarter notes, with a final cadence in the second staff.

g) El testament d'Amelia -
Catalan folksong.

Two staves of musical notation in B-flat major and 3/4 time. The first staff contains the first six measures, and the second staff contains the remaining six measures. The melody features a mix of quarter and eighth notes, ending with a fermata on the final note.

h) Canço del lladre -
Catalan folksong.

Two staves of musical notation in D major and 6/8 time. The first staff contains the first six measures, and the second staff contains the remaining six measures. The melody includes a triplet of eighth notes in the fifth measure of both staves.

i) El noy de la Mare -
Catalan folksong.

Two staves of musical notation in D major and 3/4 time. The first staff contains the first six measures, and the second staff contains the remaining six measures. The melody is composed of quarter and eighth notes, ending with a fermata on the final note.

j) La valentina - Mexican folksong.

Ex. 264. Realize the following figured basses.

(a)

F. Tarrega, Lagrima.

(b)

F. Tarrega, Rosita Polka.

(c)

N. Coste, Deuxième polonaise, op.14.

Fingering for the first staff: #6, 4, 3, 7-6, #6, 4, 3, 6, #4, #6, 5.

Fingering for the second staff: 6, 6, #, 7-6, 6, 7, #.

d)

A. Barrios, La Catedral, Allegro solemne.

Fingering: 6, 6, 6, 7, #, #4, 6, #, 2.

e)

J. Regondi, Study no.7

Fingering for the first staff: 6, 7, 7, 7, 7, 7, #, 7, 6.

Fingering for the second staff: 7, 7-6, 6, 6, 7, 4, #, 6, 6.

Fingering for the third staff: 4, 3, #, 7, 6, 7, #, 6, 6, #, 7, 4, 5.

f)

J.K. Mertz, Fantasia on 'Belisario', op.30.

Musical notation for exercise f) in treble clef, common time. The piece consists of a single melodic line with a final double bar line. The notes are: G4, A4, B4, C5, B4, A4, G4, F4, E4, D4, C4, B3, A3, G3. Fingering numbers are placed below the notes: 6, b6, 6, 6-5, #6, #6, 6, 7. Slurs connect the following pairs: (b6, 3), (6, 4), (6-5, #), (#6, 5), (#6, 5), (6, 4), (7, 6-5). A sharp sign is placed below the final note G3.

g)

J.K. Mertz, Fantasia on 'Nabuco' op.62.

Musical notation for exercise g) in treble clef, common time. The piece consists of two staves. The first staff has notes: G4, F4, E4, D4, C4, B3, A3, G3. Fingering numbers are: 6, 7, 6, #6, 6, 4. Slurs connect (7, #4), (#6, #5), (6, 4), (4, 2). The second staff has notes: G4, F4, E4, D4, C4, B3, A3, G3. Fingering numbers are: 6, 6, 6, 7, 7. Slurs connect (6, 4), (7, 7).

h)

J.K. Mertz, Elegy.

Musical notation for exercise h) in treble clef, 12/8 time. The piece consists of two staves. The first staff has notes: G4, F4, E4, D4, C4, B3, A3, G3. Fingering numbers are: 6, 6, 6, 6, #6, 6, 6. Slurs connect (6, 5), (#6, 4), (6, 4), (6, 5). The second staff has notes: G4, F4, E4, D4, C4, B3, A3, G3. Fingering numbers are: 6, 7, 6, 7, 6, 6, 7, 7. Slurs connect (6, 4), (7, #), (6, 4), (7, #), (7, #).

Ex. 265. Realize the following figured basses.⁶²

a)

Figured bass notation for exercise a) in C major, 4/4 time. The notation consists of a treble clef, a key signature of one sharp (F#), and a common time signature. The bass line is written on a five-line staff. The notes are: C4 (quarter), D4 (quarter), E4 (quarter), F#4 (quarter), G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter), B4 (quarter), A4 (quarter), G4 (quarter), F#4 (quarter), E4 (quarter), D4 (quarter), C4 (quarter). The figured bass notation below the staff is: #6 5, 6 4, 5 #, #4 2, 6, #6 5, 6, #6, 6 4, 6 5, 8-7 #---

b)

Figured bass notation for exercise b) in C major, 4/4 time. The notation consists of a treble clef, a key signature of one sharp (F#), and a common time signature. The bass line is written on a five-line staff. The notes are: C4 (quarter), D4 (quarter), E4 (quarter), F#4 (quarter), G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter), B4 (quarter), A4 (quarter), G4 (quarter), F#4 (quarter), E4 (quarter), D4 (quarter), C4 (quarter). The figured bass notation below the staff is: 7---, 6 #6, 6 #4, 6, #6 #6, 6 7, 4 5, 4 2, 4 4 #, 3

⁶² Heacox. Adapted from basses given in Part II, chapter 3, p.7.

Chapter IV

Conclusion

Fretboard harmony is an essential element in any modestly enriched university curriculum for classical guitar. Michael Rogers, in *Teaching Approaches in Music Theory*, states that “...there is something extraordinary...about the melding of tactile, visual and aural sense modes that elevates the importance of keyboard (harmony) to special status.”⁶³ This must be doubly true for the guitarist when performing the same tasks on his/her native instrument. Further, it is an unfortunate irony that the more educated a classical guitarist becomes, the less capable s/he may become as a fretboard practitioner. Fretboard harmony should therefore be a required course offering at the university level. However, there is no appropriate text in print for teaching such a course.

The primary aim of this study was the creation of a fretboard harmony text for use in an upper-level undergraduate course. To this end, a methodology was adopted in which existing related sources, both historical and contemporary, were explored. The information was examined critically to assist in determining the form, content and scope of the proposed textbook.

⁶³ Michael Rogers, *Teaching Approaches in Music Theory: An Overview of Pedagogical Philosophies*, 2nd ed., (Carbondale, IL: Southern Illinois University Press, 2004), 70.

Chapter I examined the historical record to determine if a model for modern fretboard practice existed or at the least, if there was evidence of a tradition of using the guitar as an instrument of harmony. There was almost certainly a strumming, or *rasgueado*, tradition of guitar practice which preceded the *punteado* practice exemplified in the great Parisian guitar books of the mid-16th century. These books contain little objective evidence, however, of the more explicit use of the guitar as an harmonic instrument which preceded their publication.

Baroque guitar practice is much more explicitly harmonic. There are, in fact, a number of important treatises on figured bass realization for the guitar from this period, including Matteis' *False Consonances of Music*. While these treatises might be expected to provide a more direct model for modern fretboard practice, the differences in organology, especially in tuning and in instrumental practice, between the Baroque and modern guitars, render them only marginally useful.

The early 19th century was a rich and productive period for the guitar and there are many method books from that period which remain in print today. Unfortunately, the methods by Sor, Aguado, Coste, and others contain little more than superficial comment on harmonic practice on the six-string guitar. Felix Horetzky's excellent little treatise, *Preludes, Cadences and Modulations*, is a genuine acknowledgement from the period of the importance of informed fretboard practice. It is unfortunately lacking in explicit direction and too small in scope to be used directly.

Chapter Two examined seven texts from the neighbouring fields of music theory and keyboard harmony. From this examination, a consensus on the logical presentation of material emerged: single notes lead to intervals which in turn are the building blocks of triads. These lead into a discussion of functional harmony and so forth. This provided the basic outline for the ordering of materials in fretboard harmony. It also became clear, however, that there are several ways in which fretboard harmony must differ from both theory and keyboard harmony. The scope must be comparatively limited, several specialized sections must be included to deal with the specific exigencies of the fretboard, and certain types of exercises must be emphasized while others must be excluded.

Chapter III is the method book. It is arranged in progressive increments, contains numerous important systems for bringing logical procedures and efficacy to fretboard practice and puts an emphasis on creativity and exploration of the fretboard. The Chapter aims to create competence in two elevated manifestations of harmonic practice, figured bass realization and melody harmonization. Its scope is delimited by the boundaries of common-practice harmony and its length by the expectation that the course it is designed to teach will in most cases take place over an optimistic maximum of four semesters.

After two chapters of basic fretboard geography and orientation, the “scale cell” is introduced as the core material of fretboard comprehension. The following section, on intervals, presents numerous exercises of various types to reinforce

learning of this element. The next chapters deal with chords and the notions of “cardinal” and “dilated” triads. From here, a complete system of chord derivation is developed. This is a necessary innovation in the attempt to help the developing practitioner internalize the raw materials of harmonization. After this orientation and building of resources, figured bass realization and melody harmonization are introduced. As the method proceeds and the material becomes more complex, the text provides solutions to exercises with extensive written explanation. This is done to assist in the advanced application of materials learned earlier in the method. The method book concludes with several figured basses and melodies for harmonization from the guitar repertoire.

A number of avenues for further research are immediately suggested by the current study. Firstly, the examination and ultimate discounting of the Baroque guitar treatises as models for modern fretboard practice should not discourage future in-depth exploration of these resources. There are great riches to be investigated but there are barriers to be overcome. The fact of direct ancestry does not mitigate the very significant differences between the modern guitar and the Baroque predecessor. Ideally, all guitarists should be in possession of both types of guitar. Modern technique is easily adapted to the Baroque guitar and playing this instrument greatly expands the guitarist’s range of musical pursuits. Not only can the guitarist perform in continuo groups but can also gain access to a vast store of high quality solo repertoire from the period. Guitarists today rarely play guitar repertoire from the Baroque period and rely on transcriptions from lute and harpsichord to fill this stylistic gap. Through the reclaiming of this lost music, the standard guitar repertoire

might undergo its most significant and important expansion to date.

Field testing will contribute to future refinement and adaptation of teaching materials and approaches in the fretboard harmony textbook. A carefully designed questionnaire should be developed to elicit feedback from students and teachers after a thorough interaction with the method book. To the same end, a website could also be devised with a feedback forum for users of the book.

A number of concepts introduced in the method book have potential to be further explored in future research. These include the use and importance of scale cells, the uncovering of harmonic practice in the actual guitar repertoire and figured bass practice and voice leading on the guitar. Perhaps the richest potential is in the dissemination of the chord derivation system. It is hoped that the new chord nomenclature and processes will come into regular use and practice. There is no common method for the efficient teaching and exchange of information in this domain at the time of writing.

The method book is certainly wider in scope than it is deep in detail. This leaves open the possibility of a supplement, or second volume. A richer variety of chord progression could be explored along with expanded detail on voice-leading. A greater number of examples showing the many possible harmonizations of a given substrate could also be offered. Finally, the new volume or supplement should explore modal interchange and the extended triadic harmonies, neither of which are covered in the text as it now stands.

Fretboard harmony intersects with almost all essential sub-domains in music study, specifically, music theory, music education and musical performance. The practice of fretboard harmony involves an extraordinary integration and melding of skill: the practitioner must manage the technical requirements of execution, take into account theoretical constructs, create spontaneously and assess results, all at once. Fretboard harmony is thus an important field of inquiry and fretboard practice a unique psychological, intellectual and musical undertaking.

Bibliography

Aguado, Dionisio. *Méthode complète pour la guitare publiée en Espanole par D.D.*

Aguado traduiser en Francais. Trans. Francois de Fossa. Paris: Richault, c.1826.

Aldwell, Edward, and Carl Schachter. *Harmony and Voice Leading*. 3rd ed. Belmont,

CA: Thomson, 2003.

Anderson, Doug. *Hymns and Carols of Christmas*. Accessed 8 Dec. 2009,

http://www.hymnsandcarolsofchristmas.com/Hymns_and_Carols/as_with_gladness_men_of_old.htm .

Amat, Joan Carles. *Guitarra espanola y vandola (ca. 1761): the Spanish Guitar, and the*

Vandola (ca. 1761). Ed. Monica Hall. Monaco, Editions Chanterelle, 1980.

Bach, J. S. *Sechs Suiten Violoncello Solo, BWV 1007-1012*. Ed. R. Ginzl. Munich: G.

Henle, 2000.

Barrett, George, Ed. *Congregational Church Hymnal*. London: Congregational Union of

England and Wales, 1905.

Benward, Bruce, and Gary White. *Music in Theory and Practice*. 6th ed. 2 vols. Boston:

McGraw-Hill, 1997.

Bérubé, Michael. "Anxious Academics." *American Literature* 75.1 (2003): 169-178.

- Bland, Leland. "The College Music Theory Curriculum: The Synthesis of Traditional and Comprehensive Musicianship Approaches." *College Music Symposium* 17.2 (1977): 167-174.
- Bleich, David. "Looking for the Human in the Humanities." *American Literary History* 14.2 (2002): 328-347.
- Block, Adrienne Fried. "And Now we Begin: A Survey of Recent Theory Texts." *College Music Symposium* 13 (1973): 97-105.
- Bosman, Lance. *Harmony for the Guitar*. London: New Musical Services, 1991.
- Bridge, J. Frederick. "Purcell and Nicola Matteis." *Sammelbande der Internationalen Musikgesellschaft* 1.4 (1900): 623-626.
- Brings, Allen, et al. *A New Approach to Keyboard Harmony*. New York: W.W. Norton, 1979.
- Burkhardt, Michael Arvin. "An Instructor's Manual for Teaching Hymn Playing and Beginning Hymn-Based Improvisation." Diss. Arizona State University, 2000.
- Carcassi, Matteo. *Méthode complète pour la guitare, Op.59 (1825)*. Geneva: Editions Minkoff, 1988.
- Casanas, Dagoberto. *Guia Integral De Guitarra y Armonia*. Vol. 1-2. Havana: Editoria Musical de Cuba, 1987.
- Charnasse, Helene. "A propos d'un recent article sur 'La Méthode Pour La Guitare de Luis Briceno'." *Revue de musicologie* 52.2 (1966): 204-207.

- Chmara-Żackiewicz, Barbara. "Horecki, Feliks." *Grove Music Online. Oxford Music Online*. Accessed 8 Jul. 2009
 <<http://www.oxfordmusiconline.com.myaccess.library.utoronto.ca/subscriber/article/grove/music/13346>>.
- Chess, Susan Lorraine. "Keyboard Improvisation Characteristics of Freshman and Sophomore Instrumental and Vocal Music Majors." Diss. Ohio State University, 2005.
- Chilesotti, Oscar. "Notes Sur Le Guitariste Robert De Visée." *Sammelbande der Internationalen Musikgesellschaft* 9.1 (1907): 62-74.
- Christensen, Thomas. "The 'Règle de l'octave' in Thorough-Bass Theory and Practice." *Acta Musicologica* 64.2 (1992): 91-117.
- . "The Spanish Baroque Guitar and Seventeenth-Century Triadic Theory." *Journal of Music Theory* 36.1 (1992): 1-42.
- Christiansen, Mike. *Fingerboard Theory for Guitar: A Music Theory Text for Guitarists*. Pacific, MO: Mel Bay, 2005.
- Cimino, Basil, and Robert Lilienfeld. *The Guitarist's Harmony*. New York: Franco Colombo, 1965.
- Coelho, Victor. Rev. of *The Guitar and its Music from the Renaissance to the Classical Era* by James Tyler and Paul Sparks. *Renaissance Quarterly* 57.1 (2004): 323-325.

Congleton, Jennie. "'The False Consonances of Musick': Nicola Matteis's Instructions for the Playing a True Base upon the Guitarre." *Early Music* (1981): 463-469.

Coste, Napoleon. *Méthode complète pour la guitare par Ferdinand Sor, rédigée et augmentée*. Paris: Schonenberger, 1861.

Cox, Paul W. "Classic Guitar Technique and its Evolution as Reflected in the Method Books 1770-1850." Diss. Indiana University, 1978.

Cox, Paul. Rev. of *The Guitar from the Renaissance to the Present Day* by Harvey Turnbull. *Notes* 31.4 (1975): 786-787.

Criswick, Mary. "Early Guitar." *The Musical Times* 122.1665 (1981): 758-759.

---. "Early Guitar Methods." *The Musical Times* 125.1693 (1984): 161.

---. "Guitar." *The Musical Times* 128.1733 (1987): 392.

---. "Plucked Strings." *The Musical Times* 127.1718 (1986): 216.

d'A Jensen, Richard. "The Guitar and Italian Song." *Early Music* 13.3 (1985): 376-383.

Dahlhaus, Karl. "Harmony." *Grove Music Online*. ed. L. Macy. Accessed 11 Dec. 2007

[.http://www.grovemusic.com.myaccess.library.utoronto.ca](http://www.grovemusic.com.myaccess.library.utoronto.ca).

de la Laurencie, L. Rev. of *Francois Champion, Vingt pièces de son livre de tablature de guitare transcrite en notation moderne* by Louis Baille. *Revue de musicologie* 14.48 (1933): 235.

- Dell Aquila, Paul. "Four Part Harmony at the Classical Guitar." Diss. University of Louisville, 2003.
- Denis, Françoise-Emmanuelle. "La Guitare en France au XVIIe Siècle: Son Importance, Son Répertoire." *Revue belge de Musicologie / Belgisch Tijdschrift voor Muziekwetenschap* 32 (1978): 143-150.
- Devoto, Daniel. "Encore Sur 'La' Sarabande." *Revue de musicologie* 50.129 (1964): 175-207.
- . "La Folle Sarabande." *Revue de musicologie* 45.121 (1960): 3-43.
- . "La Folle Sarabande (II)." *Revue de musicologie* 46.122 (1960): 145-180.
- Dineen, Murray. "Whither our Undergraduate Core Curriculum in Theory?" *Canadian University Music Review* 14 (1994): 146-159.
- Disler, Mary Jo. "Fretboard Mysteries Revealed: Or, a Guided Tour for the Perplexed Reader." *Soundboard* 22.2 (1995): 13.
- Dugot, Joel. "Les Cordes Pincées." *Revue de musicologie* 79.2 (1993): 335-342.
- Engstrom, Gregory, M. "Harmony and the Guitar; A Textbook on Four-Part Writing in the Common Practice Style." Diss. University of California, Long Beach, 1995.
- Escudero, Jose Castro, and Daniel Devoto. "La méthode pour la guitare de Luis Briceno." *Revue de musicologie* 51.2 (1965): 131-148.

- Fallows, David. Rev. of *Music for Merchants and Monarchs* by James Tyler. *The Musical Times* 117.1602 (1976): 666.
- Fortune, Nigel. "Continuo Instruments in Italian Monodies." *The Galpin Society Journal* 6 (1953): 10-13.
- Garnsey, Sylvia. "The Use of Hand-Plucked Instruments in the Continuo Body: Nicola Matteis." *Music & Letters* 47.2 (1966): 135-140.
- Gavall, John. *Learning Music Through Guitar*. 5 vols. London: Mills Music, 1968.
- Gill, Donald, and Mary Criswick. "Early Guitar Music." *The Musical Times* 123.1668 (1982): 90-91.
- Gill, Donald. "The De Gallot Guitar Books." *Early Music* 6.1 (1978): 79-87.
- . "Plucked Strings and Pitch." *Early Music* 10.2 (1982): 217-218.
- . "The Stringing of the Five Course Baroque Guitar." *Early Music* 3.4 (1975): 370-371.
- . "Vihuelas, Violas and the Spanish Guitar." *Early Music* 9.4 (1981): 455-462.
- Godwin, Shelagh. "Renaissance and Baroque Guitar." *Early Music* 4.1 (1976): 85.
- Green, S.G. et al, Eds. *The Baptist Church Hymnal*. London: Psalms and Hymns Trust, 1900.
- Hall, Monica J., and James Tyler. "The 'Guitarra Espanola'." *Early Music* 4.2 (1976): 227-229.

- Hall, Monica. "The Guitarra Espanola of Joan Carles Amat." *Early Music* (1978): 362-373.
- . "A Postscript to Amat." *Early Music* 6.4 (1978): 631.
- . "Recovering a Lost Book of Guitar Music by Corbetta." *The Consort: The Journal of the Dolmetsch Foundation* 61 (2005): 43-58.
- . "Santiago De Murcia." *Early Music* 11.1, Tenth Anniversary Issue (1983): 145.
- . "Santiago De Murcia." *Early Music* 10.1, (1982): 125.
- . "De Visée's Guitar." *Music & Letters* 59.3 (1978): 385-386.
- Harwood, Ian. Rev. of *Italian Baroque Guitar* by Harvey Hope. *Early Music* 9.4, (1981): 562-565.
- Heacox, Arthur. *Keyboard Training in Harmony*. Boston: Arthur P. Schmidt, 1917.
- Heck, Thomas F. Rev. of *The Early Guitar: A History and Handbook* by James Tyler. *Notes* 37.3 (1981): 588-589.
- . Rev. of *The Guitar from the Renaissance to the Present Day* by Harvey Turnbull. *Journal of the American Musicological Society* 28.1 (1975): 142-143.
- . *Mauro Giuliani: Virtuoso Guitarist and Composer*. Columbus, OH: Editions Orphée, 1995.
- Horetzky, Felix. *Preludes, Cadences and Modulations*. London: Metzler and Son, ca.1830. <http://www.muslib.se/ebibliotek/boije/pdf/Boije%20264.pdf> .

Hudson, Richard. "Further Remarks on the Passacaglia and Ciaccona." *Journal of the American Musicological Society* 23.2 (1970): 282-301.

Jeffrey, Brian. *Fernando Sor, Composer and Guitarist*. London: Tecla, 1977.

Jones, Simon. "The Legacy of the 'Stupendious' Nicola Matteis." *Early Music* 29.4 (2001): 553-568.

Julio de Vittorio, Roberto. *Armonia y Composicion Aplicadas a La Guitarra*. Madrid: Editorial Alpuerto, 1996.

Karpinski, Gary S. "Lessons from the Past: Music Theory Pedagogy and the Future." *Music Theory Online* 6.3 (2000).

King, A. H., and James Tyler. "Amat's 'Guitarra Espanola'." *Early Music* 4.3 (1976): 369.

Kohs, Ellis B. "Current Needs and Problems in the Teaching of Undergraduate Music Theory." *Music Theory Spectrum* 2 (1980): 135-142.

Koonce, Frank. *The Baroque Guitar in Spain and the New World*. Pacific, MO: Mel Bay, 2006.

Kozinn, Allan. "The Classical Guitar." *The Guitar: The History, the Music, the Players*. Don Mills, ON: Musson, 1984.

Kunda, Keith A. "Developing a New Undergraduate Harmony Textbook: A Sequential Approach." Diss. Ball State University, 2003.

- LeBlanc, Albert. "A Theory of Performance Anxiety." *Quarterly Journal of Music Teaching and Learning* 5.4 (1994): 60-68.
- Lloyd, L.S., and Richard Rastall. "Pitch Nomenclature." *Grove Music Online*. Oxford Music Online: Accessed 11 Nov. 2008.
<<<http://www.oxfordmusiconline.com.myaccess.library.utoronto.ca/subscriber/article/grove/music/21857>>>.
- Lloyd, R. and N. *Creative Keyboard Musicianship*. New York: Dodd, Mead, 1975.
- Lowder, Jerry Elwood. "An Experimental Study of Teaching Reading Concepts and Keyboard Fingering Patterns to Freshmen College Piano Classes." Diss. Indiana University, 1971.
- Lusted, Dona Sanders. "The Status of Keyboard Harmony in NASM-Approved Colleges in the Southeastern United States" (Class Piano, Functional Skills). Diss. Louisiana State University and Agricultural & Mechanical College, 1984.
- Machabey, Armand. "Les origines de la chaconne et de la passacaille." *Revue de musicologie* 25.77/78 (1946): 1-21.
- Martin, Darryl. "Innovation and the Development of the Modern Six-String Guitar." *The Galpin Society Journal* 51 (1998): 86-109.
- Martin, Deborah S. "Toward a Pedagogy for Keyboard Harmony: Practice Based on Common Objectives." Diss. Indiana University, 1996.

Matteis, Nicola. *The False Consonances of Musick (1682)*. London. Ed. James Tyler.

Monaco: Chanterelle, 1980.

McCredie, Andrew D. "Nicholas Matteis: English Composer at the Habsburg Court."

Music & Letters 48.2 (1967): 127-137.

Merhy, Silvio Augusto. "Situacoes harmonicas especiais em harmonia de teclado; Special

Harmonic Procedures in Keyboard Harmony." Brazil: IX Encontro anual da

ANPPOM, 1996.

Miller, G. A. "The Magical Number Seven, Plus or Minus Two: Some Limits on our

Capacity for Processing Information." *Psychological Review* 63 (1956): 81-97.

Murphy, Michael D. "Elements of Style in French Baroque Guitar Music: A Survey of

the Printed Scores 1663-1795, with Transcriptions and Analyses of Selected Works."

Diss. Shenandoah University, 2006.

Murphy, Sylvia. "Seventeenth-Century Guitar Music: Notes on Rasgueado Performance."

The Galpin Society Journal 21 (1968): 24-32.

---. "The Tuning of the Five-Course Guitar." *The Galpin Society Journal* 23 (1970): 49-

63.

Nelson, Cary. "Between Anonymity and Celebrity: The Zero Degrees of Professional

Identity." *College English* 64.6 (2002): 710-719.

Nelson, Jocelyn. "Matteis and Seventeenth-Century Guitar Accompaniment." *Lute*

Society of America. Quarterly 40.3 (2005): 16-23.

- Nelson, Richard B. "The College Music Society Music Theory Undergraduate Core Curriculum Survey--2000." *College Music Symposium* 42 (2002): 60-75.
- Pauley, Scott. *Latin American Music Review / Revista de Musica Latinoamericana* 20.1 (1999): 141-145.
- Pinnell, Richard T. "The Theorboed Guitar: Its Repertoire in the Guitar Books of Granata and Gallot." *Early Music* 7.3 (1979): 323-329.
- . "The Role of Francesco Corbetta (1615-1681) in the Development of Music for the Baroque Guitar, Including a Transcription of his Complete Works (volumes I and II)." Diss. University of California at Los Angeles, 1976.
- Preitano, Massimo. "Gli albori della concezione tonale: aria, ritornello strumentale e chitarra spagnola nel primo seicento; the Beginnings of the Concept of Tonality: Aria, Instrumental Ritornello, and Spanish Guitar in the Early 17th c." *Rivista Italiana di Musicologia* 29.1 (1994): 27-88.
- Prod'homme, J. -G. "Pierre De Jelyotte (1713-1797)." *Sammelbande der Internationalen Musikgesellschaft* 3.4 (1902): 686-717.
- Pujol, Emilio. *Guitar School: A Theoretical-Practical Method for the Guitar Based on the Principles of Francisco Tárrega (1952, 1956)*. Trans. Brian Jeffrey. Ed. Matanya Ophee. 2 vols. Boston: Editions Orphée, 1983.
- Putman, Lillian and Noam Chomsky. "An Interview with Noam Chomsky." *The Reading Teacher* 48.4 (1995): 328-333.

Rau, Daniel. *Don't Be Afraid of Guitar Theory*. Kitchener, ON: Gunner Guitar Publications, 1993.

Reynolds, William H., and Gerald Warfield. *Common-Practice Harmony*. New York: Longman, 1985.

Ripin, Edwin, and Denzil Wraight. "Lute-Harpsichord." *Grove Music Online*. Ed. L. Macy. Accessed 31 Jan. 2007.
<http://www.grovemusic.com.myaccess.library.utoronto.ca>.

Rogers, Michael R. "How Much and How Little Has Changed? Evolution in Theory Teaching." *College Music Symposium* 40 (2000): 110-116.

Rogers, Michael. *Teaching Approaches in Music Theory: An Overview of Pedagogical Philosophies*. 2nd ed. Carbondale, IL: Southern Illinois University Press, 2004.

Roig-Francoli, Miguel A. *Harmony in Context*. New York: McGraw-Hill, 2003.

Rothgeb, John. "Harmonizing the Unfigured Bass: A Computational Study." Diss. Yale University, 1968.

Royal Conservatory of Music. *RCM Guitar Syllabus*. Oakville: Frederick Harris, 2004.

Russell, Craig H. "Santiago De Murcia: Spanish Theorist and Guitarist of the Early Eighteenth Century. (with) Volume Two: Transcription and Translation of Santiago De Murcia's Complete Works." Diss. University of North Carolina, Chapel Hill, 1981.

- . "Radical Innovations, Social Revolution, and the Baroque Guitar." *The Cambridge Companion to the Guitar*. Ed. Victor Coelho. Cambridge: Cambridge University Press, 2003. 153-181.
- . "Santiago De Murcia." *Early Music* 10.4 (1982): 575.
- Sclater, Molly, and William Andrews. *Introduction to Materials of Western Music*. Toronto: Gordon V. Thompson, 1977.
- Scott, Wayne. "Keyboard Harmony from Chord Symbols." *Music Educators Journal* 48.1 (1961): 112-113.
- Shumway, Charles. *Harmony and Ear Training at the Keyboard*. Dubuque, IA: William C. Brown, 1984.
- Smith, Carleton Sprague. Rev. of *Francesco Corbetta and the Baroque Guitar, with a Transcription of His Works* by Richard T. Pinnell. *Notes* 38.1 (1981): 67-68.
- Sor, Fernando. *Sor's Method for the Spanish Guitar*. Trans A. Merrick. (1827). New York: Da Capo Press, 1971.
- Stears, Roland Huffman. "Continuo for Lutenists and Guitarists: A Tutor and Music Theory Supplement." Diss. Texas Tech University, 1992.
- Stevenson, Robert, Daniel Devoto, and Jose Castro Escudero. "A Propos de la Sarabande." *Revue de musicologie* 47.123 (1961): 113-125.
- Strizich, Robert, and Donald Gill. "Stringing the Baroque Guitar." *Early Music* 4.2 (1976): 235-237.

- Strizich, Robert. "L'accompagnamento di basso continuo sulla chitarra barocca, II; Thoroughbass Accompaniment on Baroque Guitar II." *Il Fronimo* (1981): 8-27.
- . *The Complete Guitar Works of Gaspar Sanz*. Saint-Nicolas, QC: Éditions Doberman-Yppan, 1999.
- Tacka, Philip, and Michel Brendan Houlahan. "Sound Thinking: A Suggested Sequence for Teaching Musical Elements for a College Music Theory Course." *Journal of Music Theory Pedagogy* 4.1 (1990): 85-109.
- Tanno, John W. "The Guitar Dons Cap and Gown: The Legitimization of the Classical Guitar in Academia." *For the Love of Music: Festschrift in Honor of Theodore Front on his 90th Birthday*. Italy: LIM, 2002. 187-208.
- Tilmouth, Michael. "Nicola Matteis." *The Musical Quarterly* 46.1 (1960): 22-40.
- Trinity Guildhall Guitar Syllabus*. Ed. Benjamin Norbury. London: Trinity College, 2006.
- Turnbull, Harvey. *The Guitar from the Renaissance to the Present Day*. London: B.T. Batsford, 1974.
- Tyler, James and Paul Sparks. *The Guitar and its Music from the Renaissance to the Classical Era*. Oxford: Oxford University Press, 2002.
- Tyler, James. *The Early Guitar*. Oxford: Oxford University Press, 1980.
- . "The Practical Guitar." *Early Music* 8.4 (1980): 506-507.
- . "The Renaissance Guitar 1500-1650." *Early Music* 3.4 (1975): 341-347.

- Usher, Terence. "The Spanish Guitar in the Nineteenth and Twentieth Centuries." *The Galpin Society Journal* 9 (1956): 5-36.
- Vaccaro, J. M. "A propos de deux éditions critiques de l'oeuvre de Francesco Da Milano: Méthodologie de la transcription des tablatures de luth et interprétation métrique de la musique du milieu du XVI^e siècle." *Revue de musicologie* 58.2 (1972): 176-189.
- Vanhulst, Henri. "Edition comparative des instructions pour le luth, le cistre et la guitare publiées à Louvain par Pierre Phalese (1545-1570)." *Revue belge de musicologie / Belgisch Tijdschrift voor Muziekwetenschap* 34 (1980): 81-105.
- Vogt, Christy. "Materials for Teaching Harmonization in the Twenty-First Century." Diss. University of Miami, 2005.
- Wagner, Naphtali. "Keyboard Harmony: A Courseware System." *Journal of Music Theory Pedagogy* 6 (1992): 111-132.
- Wennerstrom, Mary H. "The Undergraduate Core Music Curriculum at Indiana." *Journal of Music Theory Pedagogy* 3.2 (1989): 153-176.
- White, John. *Guidelines for College Teaching of Music Theory*. Metuchen, NJ and London: The Scarecrow Press, 1981.
- Wildman, Joan M. "A Re-Evaluation of Keyboard Harmony." *College Music Symposium* 22.2 (1982): 112-119.
- Wittlich, Gary, and Deborah Martin. *Tonal Harmony for the Keyboard*. New York: Schirmer, 1989.

Wolff, Christopher. "Bach, J.S." *Grove Music Online*. Ed. L. Macy. Accessed 20 Jan.

2007. <http://www.grovemusic.com.myaccess.library.utoronto.ca>.

Yakeley, M. June. *The Lute Society Booklets: La Guitarra a Lo Espanol; Aspects of Guitar Performance Practice 1525-1775*. Vol. 8. Guilford: The Lute Society Journal, 2002.

Zalkind, Ann. "A Study of Mompou's 'Musica Callada': Influences and Style." Diss. City University of New York, 2000.