# Structural and Ornamental Diatonic Harmony in Western Music, c.1700 – 1880

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By

Zelda Potgieter

Cambridge Scholars Publishing

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*For my students*

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# PREFACE

I have taught various courses in music theory, analysis and aural development at Nelson Mandela University, South Africa since the early 1980s. From this experience, two things served as motivation for the writing of this book. First, as my retirement date looms ever closer, one might say that this book represents some part of what my life's work has been, and that is to teach the subject of diatonic tonal harmony of the Common Practice Period to first-year music students. It is my admittedly somewhat self-serving hope, therefore, that when I am long gone, this book may in some small way be found useful and so continue to do my work for me. In the 1990s I completed my doctoral thesis on the subject of meta-discursive music theoretical systems. At a time when musicologists the world over were loudly calling for the abandonment of theory altogether, I argued instead for the integration of traditional theoretical approaches within a post-structuralist, "new"-musicological paradigm. I did this because I believed then, as I do now, that, notwithstanding their outdated political agendas, there remain many wisdoms in the legacy of the founding fathers of tonal theory of the late 1800s and early 1900s from which we all can and should continue to benefit. Those who choose to read this book, or implement it in their teaching and learning, will find that its key concepts are drawn from a number of these founding fathers, in particular Heinrich Schenker, Hugo Riemann, Arnold Schoenberg, and Leonard B. Meyer. It also consistently integrates the learning and teaching of tonal concepts with their auditory experience and tonal function, represented here in the form of their translation into tonic sol-fa, a system of learning and teaching that is almost as old as that of Western music itself. The degree to which we choose to engage with these theories must be suited to its purpose of course. And its purpose here is to teach first-year music students about diatonic tonal harmony. For this reason, the level of its engagement with these theories in this context remains understandably somewhat rudimentary. Together with conceptual development goes tactile-auditory learning through keyboard harmony, and through the discipline of aural development itself. The latter are

therefore integral to the activities and assessments suggested throughout each chapter.

Second, in my more-than-30-years of teaching experience in this field, I have yet to find a single textbook that covers what I believe to be the entirety of the subject of diatonic tonal harmony. The majority of the better-known texts devote an entire first section to music theory at foundation level. In addition, they frequently extend beyond the study of diatonic harmony only by including chapters on musical form, on modulation and (several) chapters on chromatic harmony. Some also extend beyond the Common Practice Period to include introductions to twentieth-century music. Others go so far as to even attempt to cover the subject of counterpoint. Because they aim to be so comprehensive, they invariably and unavoidably skim over the surfaces of many of these topics and do not do them justice. This book assumes that first-year music majors have already covered the necessary background in music theory at foundation level. It also assumes that additional, separate and specialised texts will be studied in the related fields of counterpoint, musical form, chromatic harmony, twentieth-century music and beyond. It therefore considers itself to be at leisure to give the subject of diatonic tonal harmony the detailed attention it deserves.

***Zelda Potgieter***

# CHAPTER 1

# INTRODUCTION

## *1.1 Theories of Tonal Music*

There are many theories of tonal music, the music of the so-called Common Practice Period, broadly encompassing the seventeenth, eighteenth and nineteenth centuries in the history of Western art music. Over time, many theorists have offered their particular systematisations and explanations for its harmonic language. In most cases the differences between these many explanations are the result of such theorists adhering to different viewpoints regarding how tonal music is perceived as meaningful. The aim of this book is not to attempt to cover all the different theories, explanations and meanings that have arisen as a result. Instead, this chapter will select and introduce from these a very small number of salient concepts and terms, those relied upon throughout this book as a basis for the explanations that the ensuing chapters offer for the subject of tonal harmony in the Common Practice Period.

The first of these concepts and terms are taken from Heinrich Schenker (1868-1935), an Austrian music theorist whose work has had a significant influence in music theory throughout the twentieth century and to this day, in America and other English-speaking countries of the world in particular. The second theorist whose ideas inform the explanations provided in this book is Hugo Riemann (1849-1919), a German music theorist and composer whose works in the field of tonal harmony are widely considered to have formed the foundation of modern music theory. Thirdly, brief reference will also be made to the ideas of Arnold Schoenberg (1874-1951), an Austrian composer, artist, teacher and theorist. As a composer, Schoenberg was one of the most important influences on the music of the twentieth century and the leader of the so-called Second Viennese School. Finally, this book will also rely on the general notion amongst several prominent theorists that tonal music should be

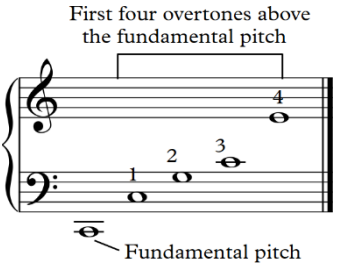
understood as a series of tension spans, amongst whom counts the work of the American theorist, composer and philosopher Leonard B. Meyer (1918-2007).

### 1.1.1 Heinrich Schenker

The theories of **Heinrich Schenker** maintain that much of what we hear in a musical performance or see at the "surface" of a musical score must be understood as mere **ornamentation of an underlying simple tonal sentence.** Melodies (horizontal musical lines) are comprised of essential or structural tones that are **composed out or ornamented** with non-essential (chordal or non-chordal) notes. The non-chordal notes in question can also be composed out to form ornamental chords. According to Schenkerian theory therefore, the horizontal (melodic) and the vertical (chordal or harmonic) dimensions of music are inextricably linked, and in fact most of what we view as belonging to the vertical harmonic dimension in tonal music actually has its origins in the horizontal melodic dimension. In Schenker's view, therefore, a thorough understanding of the principles of tonal **voice leading** is of paramount significance to our study of tonal harmony.

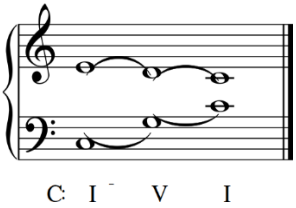
Schenker's idea of the **basic tonal sentence** or ***Ursatz,*** is that it arises out of the **tonic chord**, which in the case of the major key he calls the "chord of nature" because it is comprised of the first four, and most clearly audible, overtones above a given fundamental pitch. This is demonstrated in Figure 1-1 below, where the tonic note in C major is shown along with its first four overtones, and from which the tonic triad emerges.

**Figure 1-1. The Chord of Nature**



From this chord of nature Schenker deduces the first level of **composing out**, comprising respectively the **bass arpeggiation** and the **melodic fundamental line.** The bass arpeggiation is formed by the division of the octave as found at overtones 1, 2 and 3 in Figure 1-1 above, so introducing the fundamental importance of the 5th scale step and the dominant chord. Because melodic fundamental lines naturally gravitate towards **stepwise** movement, they introduce the first use of non-chordal notes in the form of the passing note as a means of composing out, as found in the passing note D in Figure 1-2 below. Combined with the fifth arpeggiation in the bass, this passing note forms the dominant chord. This is the first and most basic manifestation of what Schenker calls the **basic tonal sentence** or ***Ursatz***. All tonal music of the Common Practice Period, he maintains, can be **reduced** back in its essentials to one or another such sentence, comprising the progression **I – V – I.**

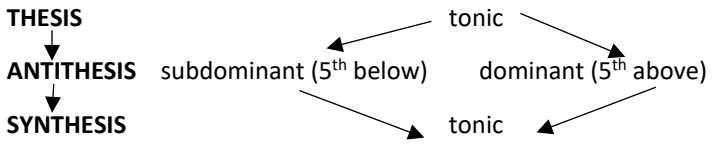
**Figure 1-2. The Simplest Schenkerian *Ursatz***




## 1.1.2 Hugo Riemann

To Riemann we owe the idea that all chords in tonal music are reducible to one of three **functions**. These relate to each other in a **dialectical** manner: whereas the initial tonic functions as the thesis, its opposite or antithesis is found in the functions a fifth above (dominant) or a fifth below (subdominant). When thesis and antithesis work out their respective differences, a resolution or synthesis is found in a return to a newly-understood or newly-defined final tonic function. This dialectical relationship is represented in Figure 1-3 below.

**Figure 1-3. Riemann's Dialectical Thinking**



Riemann's theory of harmony has many other very complex aspects to it which need not concern us here. Suffice it to note that all chords in tonal music, according to this theory, are assigned one of these three functions: either a tonic function, or a subdominant function, or a dominant function. From this we may deduce a **basic tonal sentence** which expands somewhat on that of Schenker by including the subdominant function, thus **I – IV – V – I.**

### 1.1.3 Arnold Schoenberg

Amongst many other insights, Schoenberg's writings on tonal harmony argue for a concept he called "**emancipation of the dissonance**". Initial simple, consonant structures in tonal music absorb certain characteristic dissonances, at first in the form of typical ornamental non-chordal melodic notes. In time however, these dissonances become so normative that our ears become acclimatised to their sound and we recognise them as fully-fledged members of the chords in question. So these dissonances become emancipated from the non-chordal contexts in which they initially functioned, and are able to move freely into new and different chordal contexts. In this manner triads evolve into increasingly complex forms such as quartads, quintads, sextads and septads. Emancipation of the dissonance also leads to the so-called ornamental chords that are discussed in chapters 5 and 6 of this book. In this manner also, Schoenberg argued that tonality eventually evolved into atonality, the harmonic language of his own compositions.

### 1.1.4 Tension Spans

Several scholars have based their theories of tonal music on the psycho-acoustic experience of tension and release/resolution. This experience of tonal music is likened to some of the most fundamental experiences of life, all circulating in our bodies in the same electrical language: breathing in and breathing out, hunger and its satisfaction, sexual excitement and release, and so forth. Tension creates a tendency to respond, whereas the response provides the release or resolution. In tonal music, tension is created when the norm (such as the basic tonal sentence) is disturbed in some way, whereas release or resolution is found when that norm is reinstated. This, such theorists contend, is what makes an abstract sequence of sounds into meaningful music. At the most basic of levels,

tonal tension is created through the presence of **active tones** (tones that require resolution) and subsequent release by their resolution to **passive tones**. Beyond this most basic of tension-resolution dyads in tonal music, one theorist who provides further insight into how such disturbances or moments of musical tension are created is Leonard B. Meyer. Meyer contends that three basic techniques of disturbance or tension occur in tonal music:

- A tendency to respond is **delayed** in some way or other
- The source of the tendency to respond is **ambiguous** – more than one response is possible
- The response itself is **unexpected**.

Throughout the remaining chapters of this book, numerous techniques will be shown that may be used in tonal music to create moments of musical tension through delay, ambiguity or unexpected responses.

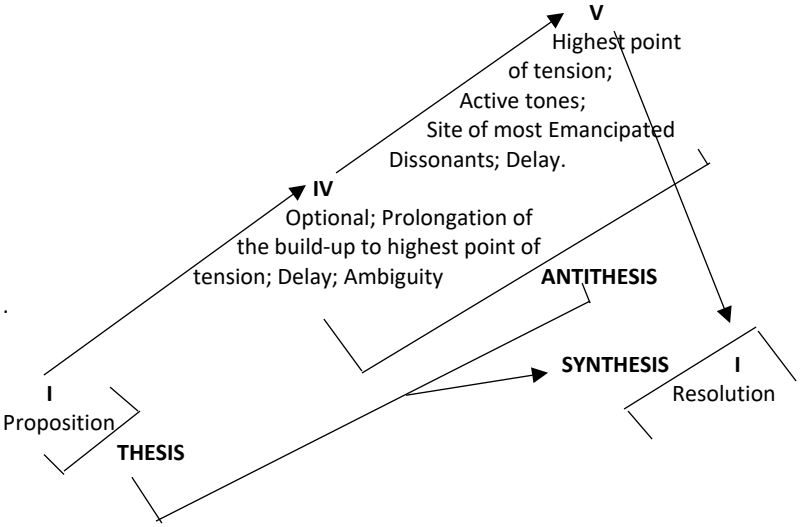
## *1.2 The Basic Tonal Sentence and an Introduction to Composing-Out Techniques*

Closer scrutiny of the theoretical positions put forward by the above four theorists reveals that they are by no means incommensurate. We can thus expand upon the models in Figures 1-2 and 1-3 and include all these ideas as shown in Figure 1-4 below. It should be remembered, however, that the basic tonal sentence does not need to include the subdominant function, as per Riemann's model (I – IV – V – I), but can be further simplified as a mere movement away from the tonic function to the dominant function, and back to the tonic function (I – V – I), as per Schenker's *Ursatz.*

The diagram in figure 1-4 provides a visual representation of the tension span—movement from an initial proposition to the highest point of tension, and then towards release, resolution or closure; movement from the thesis to the antithesis and their reconciliation in the synthesis; or movement from tonic to tonic through the $5^{th}$ arpeggiation (V) in the bass (with the omission of the optional IV). It also emphasises the **dynamic** nature of the relationships between the respective ingredients of the tonal sentence. Each necessitates **movement** towards the next. In tonal music

theory such movement is called **progression**. Any attempt to work against this sense of movement or progression at the level of the basic tonal sentence is considered an undesirable **retrogression**

**Figure 1-4. Tension and Resolution in the Basic Tonal Sentence**

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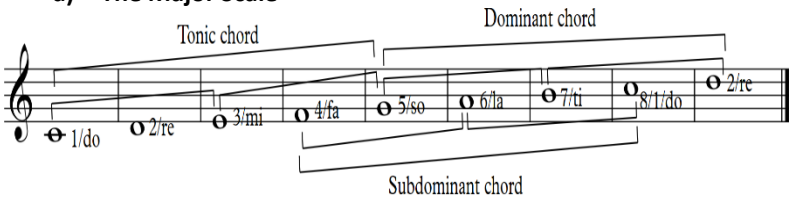
The basic principle of progression is thus that:

- The tonic function progresses to the subdominant function; or, the subdominant function is omitted and the tonic function progresses directly to the dominant function.
- The subdominant function progresses to the dominant function.
- The dominant function progresses back to the tonic function.

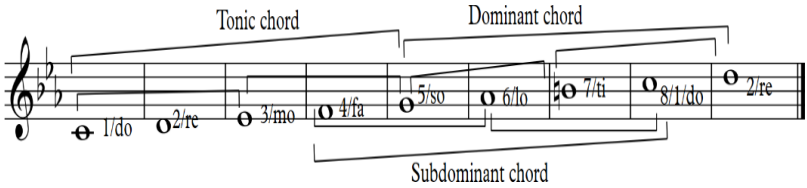
Representative of the three tonal functions (the basic tonal sentence) described above are the **three primary triads themselves: the tonic triad (I/i), the subdominant triad (IV/iv) and the dominant triad (V).** Between them they contain all the notes of the respective major and harmonic minor scales from which they derive, as shown in Figure 1-5 below.

**Figure 1-5. The Three Primary Triads in the Major and Harmonic Minor Scales**

**a) The Major Scale**




**b) The Harmonic Minor Scale**




**c) The Three Primary Triads: Scale Steps and Tonic-sol-fa Names**

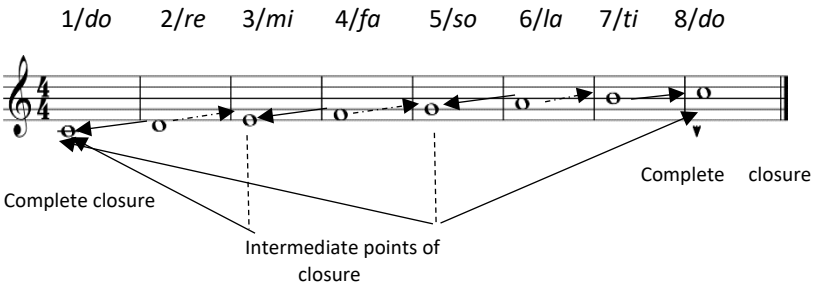
| **Tonic Chord** | | **Subdominant Chord** | | **Dominant Chord** | |
|---|---|---|---|---|---|
| Scale steps | Tonic Sol-fa names | Scale steps | Tonic Sol-fa names | Scale steps | Tonic Sol-fa names |
| 5 | *so* | 1/8 | *do* | 2 | *re* |
| 3 | *mi(mo)* | 6 | *la(lo)* | 7 | *ti* |
| 1/8 | *do* | 4 | *fa* | 5 | *so* |

Consideration of the measure of tension or resolution/closure that each of these chords contributes to the creation of musical tension spans in the course of any given tonal sentence is derived from a consideration, first and foremost, of the **horizontal (melodic) tensions** within and between the notes of the major and minor scales themselves. **Melodic tension and**

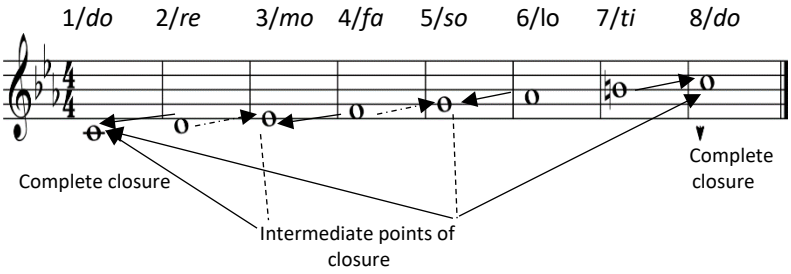
**release is thus the foundation upon which harmonic tension and release is built.** This is demonstrated with the C major and C minor scales as examples in Figure 1-6 below.

**Figure 1-6. Tensions and Resolutions amongst the Notes of the Major and Minor Scales**

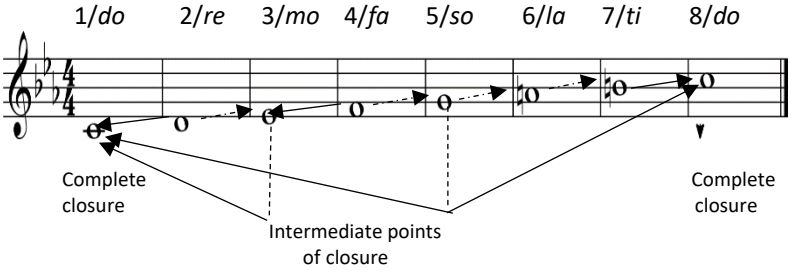
**a) The Major Scale**




**b) The Harmonic Minor Scale**




**c) The Melodic Minor Scale**

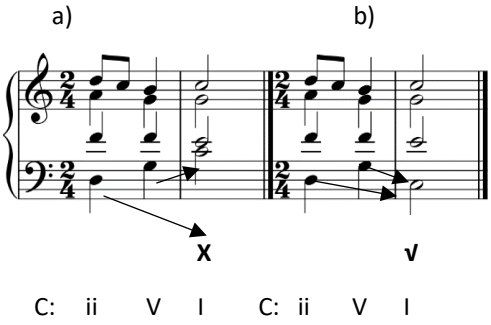


As the above figures show, at the most fundamental level melodic motion from notes not contained in the tonic triad tends towards stepwise resolution. Descending seconds are found at 2 – 1 (*re-do*), 4 – 3 (*fa-mi/mo*) and 6 – 5 (*la/lo-so*). The most notable ascending second occurs at the resolution of the leading note, 7 – 8 (*ti-do*). However, alternative resolutions (shown with arrows in dotted lines, with a lesser degree of closure) may also occur at 2 – 3 (*re-mi/mo*) and at 4 – 5 (*fa-so*). Scale-step 6 (*la*) is also sometimes used as an ascending passing note in the stepwise motion 5 (*so*) – 6 (*la*) – 7 (*ti*) – 8 (*do*) in the case of the major scale and the ascending melodic minor scale.

Resolution is thus found at scale steps 1/8 (*do*), 3 (*mi/mo*), and 5 (*so*). These are the notes of the tonic triad. Of these, however, the tonic note itself provides the greatest degree of closure, whilst 3 (*mi/mo*) and 5 (*so*) are merely intermediate points of closure, ultimately also requiring a resolution to 1/8 (*do*).

When writing chord progressions and harmony, it is important not to ignore these fundamental melodic tendencies. As earlier noted in the case of Schenkerian theory, voice leading is of paramount significance in the harmony of the Common Practice Period. Even in cases where **delayed resolution** is required, these tendencies must nevertheless be seen and heard to be obeyed. So, for example, although Figures 1-7 a) and b) below have used the same perfectly good chord progression to harmonise the given soprano melody, a) has resulted in a bad bass line, whereas b) has not, because in a) the supertonic note (*re*) has not resolved to the tonic note (*do*) below it, whereas at b) it has, albeit a delayed resolution with an intervening dominant note (*so*). This delay is not disturbing because both the supertonic note (*re*) and the dominant note (*so*) have a tendency to resolve downward to the same tonic note (*do*).

**Figure 1-7. Delayed Resolution**




*Note: The use of tonic sol-fa is encouraged in this book as a means to emphasise tonal function and to integrate theoretical concepts with aural development. Students are encouraged to apply tonic sol-fa in aural exercises such as sight-singing and the singing of chords. In addition, it is a good idea to divide the class into four voice parts to also sing on tonic sol-fa the various harmonic progressions given in this text as examples of different progression types, or those that they write themselves. This helps to internalise the sounds of the various progressions whilst also requiring a focus on the voice leading of individual voice parts. In this manner an improved tonality sense may be developed.*

Given a thorough understanding of the functional harmonic framework or underlying basic tonal sentence in tonal music, the chapters that follow in this book will present a study of some of the procedures for its **composing out in composition**. There are other composing-out techniques besides those listed below, but they lie outside the subject matter of this book. You will no doubt encounter them in your further studies of tonal harmony in future.

1. **Composing out by melodic (horizontal) means:**
   - The successive use of more than one note from the same chord (consonant skips, arpeggiations and registral transfers)
   - Non-chordal notes.

2. **Composing out by harmonic (vertical) means:**
   - The use of secondary triads
   - Emancipation of the dissonance: formation of complex chords by the assimilation of non-chordal notes into the triad
   - Emancipation of the dissonance: the composing out of non-chordal notes to form ornamental chords.

## *1.3 Assignments*

**Aural Development and Revision of Key Signatures**

a) Sing all major scales or Ionian modes on letter names and tonic sol-fa, ascending and descending.

*Example: C major*
C – D – E – F –G –A –B –$C^1$ –B –A –G –F – E – D – C
*do–re–mi–fa–so–la–ti–do– ti– la–so–fa–mi–re–do*

b) In addition to the major scale or Ionian mode, at question 1 above, sing all remaining modes on letter names and tonic sol-fa, ascending and descending. Identify the related major scale in each case.

*Example: Modes on C*
Dorian mode or re-mode:
C – D – $E^b$ – F – G – A – $B^b$ – $C^1$ – $B^b$ – A – G – F – $E^b$ – D – C
*re-- mi-– fa – so –la – ti – do – re – do – ti – la – so – fa – mi – re*
*Related major scale: $B^b$ major*

Phrygian mode or mi-mode:
C – $D^b$ – $E^b$ – F – G – $A^b$ – $B^b$ – $C^1$ – $B^b$ – $A^b$ – G – F – $E^b$ – $D^b$ – C
*mi – fa – so – la – ti – do – re – mi – re – do – ti – la – so – fa – mi*
*Related major scale: $A^b$ major*

Lydian mode or fa-mode:
C – D – E – $F^{\#}$ – G – A – B – $C^{1}$ – B – A – G – $F^{\#}$ – E – D – C
*fa – so – la – ti – do – re – mi – fa – mi – re – do – ti – la – so – fa*
*Related major scale: G major*

MIxolydian mode or so-mode:
C – D – E – F – G – A – $B^{b}$ – $C^{1}$ – $B^{b}$ – A – G – F – E – D – C
*so – la – ti – do – re – mi – fa – so – fa – mi – re – do – ti – la – so*
*Related major scale: F major*

Aeolian mode or la-mode:
C – D – $E^{b}$ – F – G – $A^{b}$ – $B^{b}$ – $C^{1}$ – $B^{b}$ – $A^{b}$ – G – F – $E^{b}$ – D – C
*la – ti – do – re – mi – fa – so – la – so – fa – mi – re – do – ti – la*
*Related major scale: $E^{b}$ major*

Lokrian mode or ti-mode:
C – $D^{b}$ – $E^{b}$ – F – $G^{b}$ – $A^{b}$ – $B^{b}$ – $C^{1}$ – $B^{b}$ – $A^{b}$ – $G^{b}$ – F – $E^{b}$ – $D^{b}$ – C
*ti – do – re – mi – fa – so – la – ti – la – so – fa – mi – re – do – ti*
*Related major scale: $D^{b}$ major*

c) Sing all minor scales, harmonic and melodic, ascending and descending, on letter names and tonic sol-fa.

*Example: C harmonic minor*
C – D – $E^{b}$ – F – G – $A^{b}$ – B – $C^{1}$ – B – $A^{b}$ – G – F – $E^{b}$ – D – C
*do – re – mo – fa – so – lo – ti – do – ti – lo – so – fa – mo – re – do*

*Example: C melodic minor*
C – D – $E^{b}$ – F – G – A – B – $C^{1}$ – $B^{b}$ – $A^{b}$ – G – F – $E^{b}$ – D – C
*do – re – mo – fa – so – la – ti – do – to – lo – so – fa – mo – re – do*

d) The instructor may also play examples of the scale types at points a), b) and c) above and require students to recognise, notate and name these.

e) Spell the tonic, subdominant and dominant triads in all major and harmonic minor keys. Practise singing these on letter names and tonic sol-fa.

# CHAPTER 2

# STRUCTURAL HARMONY

## *2.1 Primary and Secondary Triads: Structural Progression*

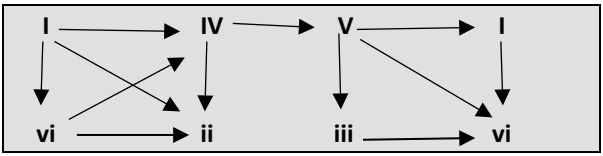
The three **primary** triads are the most frequently encountered means of representing Riemann's three tonal functions, so much so that the functions themselves are identified by the names of the three chords in question: the tonic chord as the primary triad of the tonic function, the subdominant chord as the primary triad of the subdominant function, and the dominant chord as the primary triad of the dominant function. However, the primary triads are by no means the only chords that may be used to represent these three functions in tonal music. One of the first ways in which the basic tonal sentence is composed out is by means of the inclusion of **secondary triads**. Within each functional group, the secondary triad is located a **diatonic third below** its primary triad in the key in question. Thus

- The tonic function can be represented by the submediant chord
- The subdominant function can be represented by the supertonic chord
- The dominant function can be represented by the mediant chord.

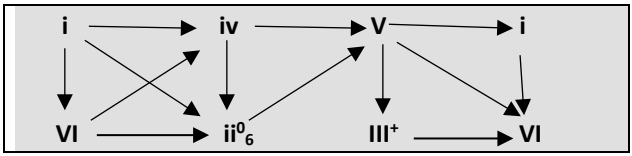
In this manner the tonal sentence comprises **six structural chords**, and the possibilities for progression become more varied. These possibilities are shown in the diagrams in Figure 2-1 below.

**Figure 2-1. Diagrammatic Representation of Progressions in Structural Harmony**

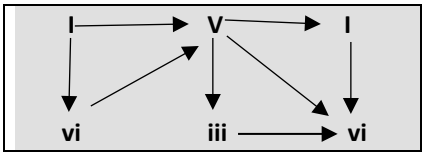
**a) Major Keys including the Subdominant Function**



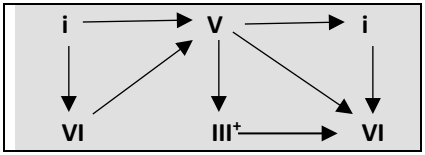

**b) Minor Keys including the Subdominant Function**




**c) Major Keys Excluding the Subdominant Function**




**d) Minor Keys Excluding the Subdominant Function**



The diagrams in Figure 2-1 show the following:

- The tonal sentence may include the subdominant function, as per Riemann's basic tonal sentence, shown in Figures 2-1 a) and b).
- The tonal sentence may exclude the subdominant function, as per Schenker's basic tonal sentence, shown in Figures 2-1 c) and d).
- The **arrows** in these diagrams indicate all the **progressions** possible at the level of the structural tonal sentence.
- Note that, as shown by the direction of the arrows **within** each functional group, a secondary triad can never precede its own primary triad. **Progression** is always from the primary triad towards its secondary triad. At the level of **structural chords in the tonal sentence**, the opposite would constitute an unacceptable **retrogression**. Later, when ornamental chords are introduced to further compose out this sentence, then new possibilities arise. These are dealt with in chapters 5 and 6. For the moment, however, we are dealing with structural chords in the tonal sentence only.
- Note that the **four predominant chords** in the structural tonal sentence allow for numerous possible combinations, as indicated by the arrows in the diagrams above. All four may be used in this order: I (i)[1] – vi (VI) – IV (iv) – ii (ii$^0_6$). Alternatively, any of these may be omitted, giving rise to variations such as I (i) – vi (VI) – ii (ii$^0_6$), or vi (VI) – IV (iv) – ii (ii$^0_6$), or I (i) – vi (VI) – IV (iv), or vi (VI) – ii ($^0_6$), or I (i) – ii (ii$^0_6$), and so forth. **Thus, the predominant secondary triads—submediant and supertonic—may either follow immediately after their own primary triads, or stand alone to represent their respective functional groups.**
- The case of the **mediant** chord is somewhat different, however. As a structural chord with a dominant function, **it must be preceded by the dominant chord itself, and it may only resolve to the submediant chord.** The reason for this limitation placed upon its use as a structural chord may be found in the ambiguities it presents. It shares two scale steps

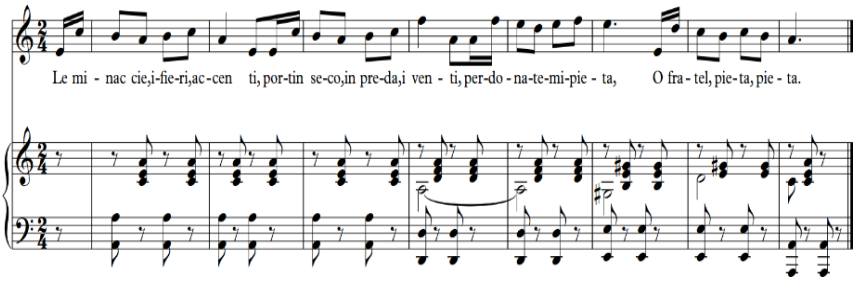
[1] The chords shown in brackets indicate their use in minor keys.

with both the tonic and the dominant chords, and is in fact often used as an ornamental chord within the tonic functional group. These latter uses of the mediant chord, however, are ornamental rather than structural. The ornamental uses of the mediant chord are discussed in chapters 5 and 6. Therefore, to distinguish its different roles, and to define its role in this context as **structural** rather than ornamental, it must be preceded by its primary chord, the dominant.

- Secondary triads are therefore ***not* independent** chords in the sense that they do not have their own harmonic functions. They can only replace—or extend upon the function of—their respective primary triads. However, secondary triads ***are* independent** chords in the sense that they are self-contained, have their own identities, and that they are **structural** chords within the tonal sentence, rather than merely ornamental.

**Examples**

2-1. Verdi, *La Forza del Destino,* Act IV




a: I iv V i