

THE FUNDAMENTAL PRINCIPLES OF HARMONY

NARCÍS BONET

WITH AN APPENDIX
"COURS D'HARMONIE"
(HARMONY LESSONS)
PREVIOUSLY UNPUBLISHED TEXT
BY NADIA BOULANGER

TRANSLATED BY
PHILIP LASSER



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THE FUNDAMENTAL PRINCIPLES OF HARMONY

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PREFACE

All young musicians know how important it is to understand and master the ground rules of musical language.

In works from Rameau to Fauré, it is surprising to see how just one note shifted or changed can make music tip from one key to another!

Narcis Bonet must be thanked for having undertaken this methodical and clear update of the fundamental principles of harmony, illustrated with copious examples. We also celebrate this wonderful idea to reveal in appendix, for the first time, the “Cours d’Harmonie” (Harmony lessons) of Nadia Boulanger which have served as the foundation for so many musicians.

The International Nadia and Lili Boulanger Foundation is delighted with this wonderful undertaking and is most grateful to its author who was so particularly close to our incomparable Master Teacher.

Dominique MERLET

President of The International Nadia and Lili Boulanger Foundation

PROLOGUE

It is a myth that innate talent alone produces the master musician of any period. When one delves into the circumstances of each, one inevitably finds the guidance and training of a Master Teacher.

That Nadia Boulanger's teaching was legendary is undeniable. She alone trained several generations of the most prominent composers, conductors and musicians of the XXth Century. Her greatness as a teacher was due as much to her grandeur as a musician and human being as it was to her ability to share her insights and sensitive understanding of musical truths with her students. Central to her great pedagogy was the careful study of Harmony.

Narcis Bonet, like Nadia Boulanger, is a Master Teacher. His extensive training with her makes him one of the true bearers of her legacy and transmitters of her thought. But more than that, in his "Traité d'Harmonie", Narcis Bonet has organized Boulanger's copious but disparate insights into Harmony into a cogent and consistent method of study.

In this treatise, Narcis Bonet lays down in a simple and clear style a most profound and fruitful understanding of Harmony. The clarity and elegance of this treatise belie the depth of Narcis Bonet's profound understanding of the subject and result from his uncanny ability to explain complex ideas in plain, straightforward language.

This treatise offers to both teacher and student a unique and powerful knowledge of the musical universe of chords, harmonic syntax, doublings, and spacings. Taught as the art of hearing and listening, Harmony is treated here with sensitivity and musicality.

From thorough analysis of the norms and standards of common chords and musical syntax, the treatise leads the reader to an ever deeper understanding of the subtle but powerful tools available to the ear through harmonic doublings and spacings. In particular, never has there been a more elegant elucidation of the first-inversion chord and its many secrets.

This book is a rare document indeed. It is first a major source of the core teachings of Nadia Boulanger on Harmony. It is also a codification and clarification of her many intuitions on the subject. Finally, it is the fruit of Narcis Bonet's own profound insights into the topic, seasoned by his many years of continuing the legacy he inherited of sensitive musical training through the act of teaching, mentoring and inspiring.

Occasionally, I augmented the text to make clear some concepts that exist effortlessly in French but that simply do not have equal terminology in English. For example, the term in French for triad - *accord* - implies the notion of an "agreement between three pitches". This is similar in English to the notion of diplomatic treaties between countries (i.e. the Geneva Accords). Also, the terms used for first inversion chords - *Accord de Sixte* or *Premier renversement de l'accord* - contain within them both relics of Figured Bass (numbers indicating intervals above the bass) or concepts of flipping over the members of the triad and hence turning upside down « the agreement » between these pitches. Without a good understanding of the implied concepts behind these and other terms, much of the subtle explanations for harmonic events, found within these pages, would be lost.

Without a doubt this book stands as one of the major resources in the understanding of Harmony. It is my hope that by its existence, it will bring to an ever-increasing public a key part of the great musical training that was "La Boulangerie".

Dr. Philip LASSER

Composer

Professor at The Juilliard School

Director of EAMA (European American Musical Alliance)

INTRODUCTION

Along with my earlier treatise, “The Essential Elements of Music” the current volume, “Fundamental Principles of Harmony” completes a pedagogical method for studying Harmony and Music as it was given to me by my mentor, Nadia Boulanger.

Over the course of my long teaching career, I have noticed that the usual study of Harmony « at the desk » (that is, away from the piano) has proven ineffectual for most students. Students often lack the sufficient mastery of solfège required to read the traditional harmony exercise displayed in four clefs and also lack the necessary inner ear to be able to truly hear these pitches internally. Does this mean that these students can never gain the understanding of Harmony so vital to their musical awareness?

Nadia Boulanger valued the learning of harmony at the keyboard, through the study of *harmonic sequences* and the use of Vidal Bases⁽¹⁾. I use this approach here to help the student acquire and develop reflexes necessary for linking aural perception to musical logic both mentally and physically through the hands. For this reason I devote the first chapter to presenting basic topics of keyboard harmony before broaching the actual study of the rules which govern the writing of tonal music. These rules grow out of a few simple principles which are based on perceiving Melody *in relation* to Harmony and the relationship of both of these to intervals.

When broaching the topic of first inversion chords where voice-leading becomes more complicated, we must begin with written exercises before moving to the corresponding study at the keyboard. I suggest, therefore first to realize, in written form, the exercises of Henri Challan⁽²⁾ and second to work out “Vidal Bases” at the keyboard. For the written exercises, I recommend using a piano grand staff with Soprano and Alto in the Treble clef and Tenor and Bass in the Bass clef. This allows for multiple solutions to be shown on the same page enabling easy comparison. This should also leave enough room for further corrections or additions.

We hold that *melody* belongs to the horizontal dimension (i.e. the succession of pitches) and that *harmony* belongs to the vertical dimension (i.e. simultaneity of sound). This is why we learn that the interval of a second sung as 2 successive pitches:



is a *melodic* interval, and that this same interval heard simultaneously:



is a *harmonic* interval.

Likewise we say that the interval of a third



is a melodic interval while the same interval:



The phenomenon of *melody* which is the rise and fall of pitch is based in the principle of string tension; as the tension on a string increases, the pitch rises and conversely as string tension releases, the pitch lowers. This tension and release takes place in time and thus constitutes melody or succession of pitches which move by microtonal intervals. The phenomenon of *harmony* is based on the overtone series and thus is produced *simultaneously* over a single pitch which we call the fundamental⁽³⁾. This notion of *simultaneity*, attributed to harmony and *succession*, and also attributed to melody operates independently of the concept of *interval* itself which relates simply to distance between pitches and how intervals relate separately to *melody* and *harmony*.

⁽¹⁾ See “Recueil de Bases et Chants” of Paul Vidal and Nadia Boulanger - Narcís Bonet. Dinsic Publicacions Musicals, Barcelone

⁽²⁾ See “380 Bases et Chants donnés” by Henri Challan. Alphonse Leduc, Editions Musicales. Paris

⁽³⁾ See “Le Son” (on Sound) p. 55 in “Les éléments essentiels de la musique” Dinsic Publicacions Musicals, Barcelone

INITIATION TO KEYBOARD HARMONY

STUDY OF KEYS

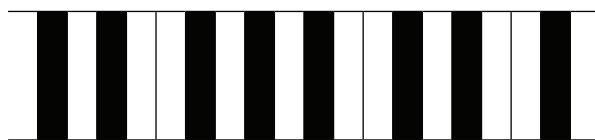
As the study of traditional Harmony is based on the tonal system, we feel it is indispensable to gain complete mastery of the 12 keys on the keyboard, both melodically (through scales) and harmonically (through chords). With this in mind we begin by examining the tetrachord.

The Tetrachord

Discover and study the circle of tetrachords at the keyboard (a succession of 4 consecutive notes forming the interval of a perfect fourth (2 tones and a semi-tone) beginning from Do (C):
(With the right or the left hand)



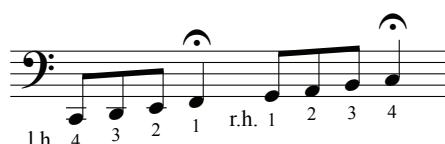
In order to master the tetrachord on each of the 12 keys and to internalize the irregularity of the $\frac{1}{2}$ step between Mi-Fa (E-F) and Si-Do (B-C), we suggest that you hide the lower part of white keys of the keyboard and that you play the circle of tetrachords, even if with only one finger (the index finger), before using the systematic fingering 1,2,3,4 for the right hand and 4,3,2,1 for the left. Realizing the tetrachord can be made easier if you repeat the tone-tone semi-tone pattern when playing the intervals of each tetrachord.



Once the preliminary difficulties in realizing this exercise have been overcome, we strongly recommend naming the notes as you play them. This exercise underscores the problem of the sharps and flats and the enharmonic pitches. You should choose alternatively to use sharps or flats for the tetrachord measures 5,6,7 and 8.

The study of the Major Scale in all 12 keys

The major scale being formed of 2 tetrachords separated by a whole step, one should begin this study at the keyboard first by playing the first tetrachord of the Do (C) Major, with the left hand (fingering: 4,3,2,1) followed by the second tetrachord with the right hand (fingering: 1,2,3,4):



THE TRIAD IN ROOT POSITION

Before embarking on the study of chord progressions in root position, it is important to understand why Harmony is written in four parts (soprano, alto, tenor, bass) when triads have but three sounds.

The study of Harmony is in fact the study of the *agreement* between the melodic and harmonic realms of music through the intermediary of triads upon which all tonal organization is based⁽¹⁾. Seen in this way, the process of tension to release must occur both through the harmonic articulation of Dominant-Tonic, assigned to the bass, and the melodic articulation of leading tone-Tonic, assigned to the soprano:

The process of tension-release

It is then necessary to have a 4th voice to ensure that both triads will have all 3 of their sounds. As a result, the root of each chord is doubled by one voice or another above the bass:

N.B. These 4 voices correspond also to the natural divisions of high and low found in the human voice, both male and female.



GENERAL RULES FOR REALIZING BASSES

“Disposition” (vertical voicing) of triads

A triad being formed of 3 pitches displayed in 4 voices, one voice will sporadically always be doubling the bass.

As for the vertical voicing of triads, the interval between the tenor and the alto or the alto and the soprano should not exceed that of the octave. Between the tenor and the bass, one can exceed this octave limit. These limits are strictly for scholastic purposes.

We call a narrow “disposition” (from now on we will use in this translation the term “disposition”, which we considere more evocative than the term “chord position”, to indicate the vertical display or voicing of a triad in the standard SATB harmonization) that which the 3 upper voices are close to one another, and the wide disposition conversely, the one where the voices are more spaced apart:

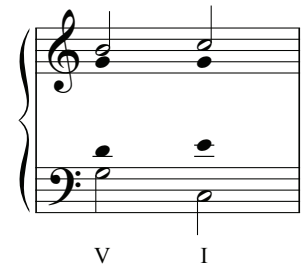
Examples:

⁽¹⁾ See Tonal organization, p. 62; Primary intervals and melody, p. 72; The Fundamental chords, p. 78, in the “Les éléments essentiels de la musique” Dinsic Publicacions Musicals, Barcelone

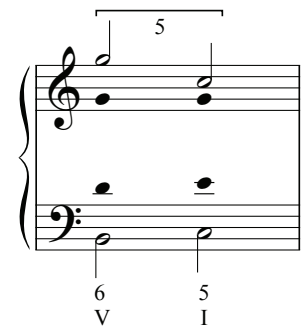
THE TRIAD IN FIRST INVERSION

With the First Inversion triad, we leave the Renaissance and enter into the full-fledged Baroque: a big step forward in the development of music, comparable to the change from the modal era to the tonal era. Tonal harmony reversed the way melodic tension could be released, instead of releasing tension by descending, as it was in the modal world, melodic tension now can be released ascendingly with the resolution of the **leading-tone** up to the **Tonic**.⁽¹⁾ With the arrival of the First inversion the situation **reverses entirely** once again. This is why the First Inversion is, perhaps the most difficult aspect of harmonic training to master.

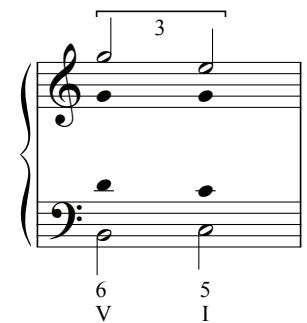
In root position triads, the movement of tension/release is expressed **harmonically** by the bass (interval of the fifth) through the articulation **Dominant-Tonic**, and **melodically** by the soprano (interval of second) in the articulation of the **leading-tone-Tonic** resolution, yielding the **perfect-authentic cadence**:



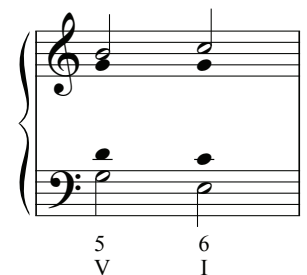
In reversing the roles, that is to say, by entrusting the melodic domain to the Bass and the harmonic domain to the Soprano, one should end up with :



However, this flipping of the situation will involve the use of the interval of the third, which had, until now, been kept to the side, and which now will take on an important role in the natural resolution of the **imperfect authentic cadence**:



The introduction of the interval of the third, a new situation arises and, by the exchange between the soprano and the bass, will yield the other form of the **imperfect cadence**:



These “flipping of roles” will create a new system of exchanges (or switches) between the voices, notably between the bass and the soprano.

⁽¹⁾ See “On Sound”, p. 58 and “Melodic organization of pitches”, p. 66 in “Les éléments essentiels de la musique” Dinsic Publicacions Musicals, Barcelona

THE SECOND INVERSION OR SIX-FOUR CHORD

By comparison to the first inversion, the second inversion of a triad underscores even more the concept of an illusory inverted root. If, in the *first-inversion* chord, the *sixth* (above the bass) normally assumes a melodic role, in the *second-inversion* chord, this melodic role is assumed not just in 1 but rather in 2 voices simultaneously. Thus this chord-inversion can present itself as these possibilities:

1 – double *appoggiatura* (consonant):

6 5
4
I
V

6 5
4
IV
I

2 – double *neighbor-tones* (consonant):

5 6 5
4
V I

5 6 5
4
I IV

3 – double *passing tones* (consonant):

5 6 5
4
I IV V

5 6 5
4
IV VII I

4 – double *anticipations* (consonant):

5 6 5
4
V I I

5 6 5
4
V I I

5 – double *passing tone and neighbor* (consonant)

6 6 5 6 6
4
I V V

6 6 5 6 6
4
IV I I

6 – *Passing chord in a double voice-exchange*:

6 6 6 (5)
4
IV I II
IV IV

7 – Double *pedal* (giving rise to imitations):

6 6 5 6 6 6
4
I V V
IV I I

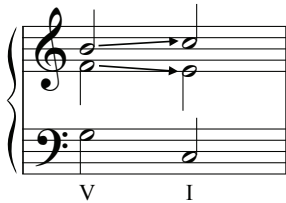
The double *pedal* allows the use of the bass of a *six-four* chord as a *neighbor tone* or *passing tone* (consonant):

5 6 5 6 5
4
VI VI
I IV

THE DOMINANT SEVENTH CHORD

As its name indicates, this chord, born out of the harmonic overtones above a pitch and made up of the superposition of a major third and 2 minor thirds, corresponds to the function of **Dominant** in the tonal system, in which it plays the central role. ⁽¹⁾

The tension produced by the **tritone** formed between the **leading-tone** and the **Sub-Dominant** (on opposite ends of the pitches of a key in perfect fifth order) requires resolution by having the **leading tone** rise to the **Tonic** and the seventh of the **Dominant** fall to the third of the **Tonic**. This we call the natural resolution:



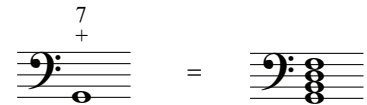
This double melodic resolution belongs to what could be called the fundamental laws of the “Constitution of the Tonal Republic”.

Made up of 4 sounds, **the Dominant seventh chord** can be in root position and have three inversions. It is interesting to observe that we study simultaneously all the inversions of this chord, whereas with triads, we study each position (root, first inversion and second inversion) separately. This is because the natural resolutions for the chord stay essentially the same regardless of the inversion of the chord.

The Figures for the Dominant Seventh Chord.

The (French) figures for this chord adopt a conventional symbol (the +) to designate the leading-tone, and is to be used exclusively for **Dominant seventh chords** and **Dominant ninth chords**, both with or without root.

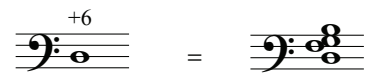
Thus in **root position**, the chord is made up above the bass of a major third, a perfect fifth and a minor *seventh* which we indicate by the number 7; it is not necessary to indicate the fifth (which is assumed) and in place of the number 3 which corresponds to the *third* of the chord, one needs only to use the + symbol to indicate that this *third* from the bass is in fact the **leading tone** of the key within the **Dominant Seventh chord**. Thus:



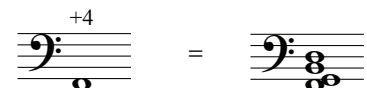
In the **First inversion**, since it is itself in the bass, the **leading tone** cannot be indicated in the figures. The *third* above the bass being assumed (i.e. the 5th of the chord), we need only point out the *diminished fifth* and the *sixth* above the bass:



In the **Second-inversion**, we need only place the + next to the 6, indicating that the *sixth* above the bass is the **leading tone** of the key (this sixth being, obviously, *major*):



In the **Third-inversion**, we need to place the + next to the 4, indicating that the *fourth* above the bass (*augmented fourth*) is the **leading tone** of the key:



⁽¹⁾ See “Seventh Chords”, p.87; “The Tritone”, p. 65 in “Les éléments essentiels de la musique” Dinsic Publicacions Musicals, Barcelone

SEVENTH CHORDS OF OTHER TYPES ⁽¹⁾

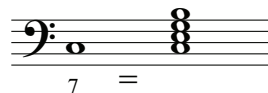
Just like the *Dominant seventh chord*, **Seventh chords of other types (other seventh chords)** - *Major seventh chords* (on I and IV), *Minor seventh chords* (on II, III, and VI), *Leading tone seventh chords* and *Diminished seventh chords* (or *Dominant Ninth* with no root) allow for a large number of melodic motion between harmonic structures, represented by non-chord tones seen as *suspensions* or *appoggiaturas*:

The image displays four musical examples of non-chord tones in a piano accompaniment style (treble and bass clefs):

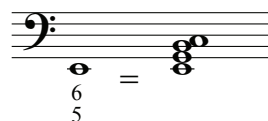
- anticipation:** Shows a sequence of chords with notes entering before the main chord. Fingering: 6, 2, +6/3, 2, 6/5, 2.
- échappée (escape tone):** Shows a note (p.t.) that escapes from a chord. Fingering: 6/5.
- passing tone:** Shows a note passing between two chords. Fingering: 6/5.
- or pedal:** Shows a note held in the bass while the harmony changes above. Fingering: 6/5.

The Figures for non-Dominant seventh chords: (major and minor)

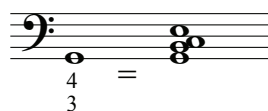
In root position, simply a 7
(the *fifth* and *third* are assumed)



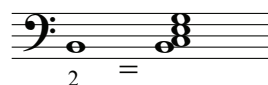
In first inversion, simply a $\frac{6}{5}$
(the *third* is assumed)



In second inversion a $\frac{4}{3}$
(the *sixth* is assumed)



In third inversion, simply a 2
(the *second*, *fourth* and *sixth* being assumed)



(1) See "The Essential Elements of Music" p. 9

APPENDIX

HARMONY LESSONS OF NADIA BOULANGER

ROOT POSITION TRIADS

1 - Major triads

in major:

in harmonic minor:

in melodic ascending minor:

in melodic descending minor:

(1) the doubling of the IVth degree creates *direct fifths* between the tenor and Bass.



that we can avoid by doubling the Tonic (see the *Inverted Sub-Dominant*, p. 53)



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