

Henri-Montan Berton's *Cours d'Harmonie* in Paris Conservatory: According to Aimé LeBorne's Notebook

パリ音楽院におけるアンリ＝モンタン・ベルトンのハーモニー講座
——エメ・ルボルヌのノートによる——

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Introduction

This paper presents a study of the harmony pedagogy employed by the French composer and music theorist Henri-Montan Berton (1767–1844) during his tenure as a harmony professor at the Paris Conservatory from 1795 to 1816. In 1818, he became professor of counterpoint and fugue until 1844. In May 2, 1838, he was appointed as the educational inspector. The primary sources of this research are Berton's *Traité d'harmonie* (Treatise on Harmony) and the records from his 1812–13 harmony lessons, compiled by Aimé Leborne and titled *Cours d'harmonie de l'année 1813* (Harmony Course of the Year 1813). By comparing the harmony textbook itself with its teaching methods and contrasting them with 18th-century *partimento* instruction, it reveals the tradition of *partimento* education that has been present since the 18th century.

Henri-Montan Berton

Henri-Montan Berton, a French composer and music educator, held the position of professor at the Paris Conservatory and was the son of the renowned French composer Pierre-Montan Berton. He began reading full musical scores and playing keyboard instruments and the violin at the age of six, his father providing him with the most basic musical training. He received informal composition training from the French composer Jean-Baptiste Rey (1734–1810). Subsequently, he sought guidance from the Italian composer Antonio Sacchini (1730–1786) by showcasing his own compositions (David 2001). In 1795, Berton was appointed as a harmony professor at the Paris Conservatory, and in 1818, he assumed the role of professor of counterpoint and fugue course. According to Constant Pierre's records of harmony course instructors, Berton has been one of the earliest professors of harmony (*harmonie*) since the inception of the course (Pierre 1900, 537). Charles-Simon Catel (1773–1830) also served as a harmony professor during the same period, from 1797 to 1816. Notably, one of Berton's students, François Bazin (1816–1878), later became a

harmony professor at the Paris Conservatory, carrying forward Berton's teachings.

Structure of Composition Courses at the Paris Conservatory in the 19th Century

According to Michael Masci, students pursuing composition at the Paris Conservatory in the 19th century were not able to directly enroll in composition courses (Masci 2022, 2.1.2). Instead, they were required first to study foundational music knowledge and ear training courses, much like other students. After completing these basic courses, students were allowed to enter a one-year harmony course.

The harmony course had various forms, including keyboard harmony, written harmony (*harmonie écrite*), or a combination of both called *harmonie et accompagnement pratique*. Following this, students could enroll in other courses such as counterpoint, fugue, and lyrical composition. At the conclusion of each course, there were examinations and competitions (*concours*)¹, which determined whether students could progress to the next level courses (Masci 2022, 2.1.1-2).

The Paris Conservatory adopted competition-winning students as assistant teachers called *répétiteurs*. Victor-Charles-Paul Dourlen (1780–1846) was one of the *répétiteurs* for Berton's harmony course. During Leborne's time in Berton's class, Dourlen authored many of the exercises².

According to La Grandville, the "Harmony and Composition" course was at that time a third year course, and there were two classes, Catel's and Berton's, in 1806–1811, which were subsequently increased to three. Harmony classes could not be taken for more than one year, and only students who were allowed by the government were allowed to take two or more years of study. Only students who could read music and knew the keyboard were allowed to enter the harmony class, and only those who knew harmony were allowed to enter the composition program. Catel and Berton's classes coexist while adhering to the "unity of teaching" principle at the Conservatoire. Catel employs his own treatise, and Berton follows the mandatory teaching according to the Conservatoire's prescribed works, although he likely aligns with Catel, excluding certain "Ramist"³ aspects (La Grandville 2022, Tome 2 "*L'enseignement dans les classes d'harmonie*"⁴). Some elements from Berton's class are the same as in Catel's *Traité*, I will discuss it later in this paper.

Pedagogy of Italian Origin (Partimento)

Very little literature has been elaborated on the relevance of the pedagogical approach of the Paris Conservatoire at the beginning of its existence to music education in Italy. But there is still much evidence that the early teaching at the Paris Conservatoire was influenced by Italy, and perhaps even copied Italian methods exactly. In the acknowledgments to Cherubini at the

beginning of Dourlen's *Traité d'harmonie* it is said that his education from Cherubini, Berton, Catel, and Méhul was based on the Italian school (Dourlen 1834, "A Monsieur Cherubini")⁵.

Partimento, a term frequently used in the eighteenth and nineteenth centuries, primarily in Naples and Milan, denoted figured-bass exercises, though its meaning varied over time and location and the origin of this term remains unclear. It may be closely related to the teaching of composition theory at the Paris Conservatoire in the 19th century. *Partimento* served as a guide for keyboard improvisation, explaining the scarcity of written *disposizione* (practice by the master) in the late seventeenth to early eighteenth centuries. *Partimento* instruction evolved, with written examples emerging in the late 18th century. In this context, instructors of *partimento* were known as *Maestros*, often associated with the Neapolitan School of Music. Fedele Fenaroli (1730–1818), a pupil of Francesco Durante, was a prominent music teacher in Italy and authored *partimento* rules and exercises. Notably, Italian theorists rarely wrote treatises on *partimento* theory, leaving mostly musical examples as keys to understanding their teaching methods. In recent years, American music theorist Robert O. Gjerdingen has applied schema theory to explain various teaching methods found in many Partimenti (Gjerdingen 2020). More about schema theory will be explored in the following sections.

The term *partimento* does not appear in early harmonic textbooks including Catel, Berton, Dourlen and others. But the word appears in many subsequent harmony books. François-Joseph Fétis (1784–1871) mentions Fedele Fenaroli's *partimento* in his *Traité complet de la théorie et de la pratique de l'harmonie contenant la doctrine de la science de cet art* (Fétis 1844, 145). François Bazin (1816–1878), a student of Berton and Dourlen who became the professor of harmony and accompaniment in 1847–1871, uses the word *partimento* extensively in his *Cours d'harmonie théorique et pratique*, where he refers to the harmonic exercise as a *partimento* and explains that the fourth part of the *partimento* is called *basse donnée* in the school style (Bazin 1857, 59). Hippolyte Colet (1808–1851), a pupil of Antoine Reicha (1770–1836) and Berton, who was appointed Professor of Harmony in 1840–1851, in turn composed a book called *Partimenti ou traité spécial de l'accompagnement pratique au piano*, and also mentioned Fenaroli in it (Colet 1846, 13). In addition to this, there are a number of harmonic textbooks that mention the *partimento*.

The relevance between *partimento* and the early teaching at the Paris Conservatory is primarily reflected in two aspects: the teaching method characterized by schemas and the harmony progression with *basso movimento* ("sequence" in English or "*marche d'harmonie*" in French) principle. For more on Fenaroli's *partimento* see my research note "A Study of Partimento: The Rules of Fedele Fenaroli (Chen 2023)".

Figured Bass

Berton's *Traité* uses a different figured bass notation system compared to others like Catel and

Cherubini. In the second chapter, “*Des intervalles, de leurs rapports respectifs, et de la manière de les représenter par des chiffres et par d’autres signes*” (On intervals, their respective relationships, and how to represent them with figures and other symbols), Berton explains that an “unaltered” interval does not require any additional symbols after the figure⁶. A “minor” interval, however, needs a flat symbol after the figure, a “major” interval requires a sharp symbol after the figure, an “augmented” interval requires a double sharp symbol after the figure, and a “diminished” interval is represented by placing a slash above the figure. Additionally, the number “0” represents an omitted constituent pitch, for example, “7/0” indicates the omission of the fifth degree of the seventh chords, and “5/7/0” represents the omission of the 3rd. These usages of accidentals is different from the modern marking methods; it originating from Rameau. In modern notation⁷, accidentals in the figured bass are the same as those in the score. Furthermore, in Berton’s notation system, all numbers are written with the smaller number above and the larger number below, which is opposite to the common convention (Berton 1815, 3-4, See Fig. 1).

Chords

In modern music theory, triads are typically categorized as major triads, minor triads, diminished triads, and augmented triads. Seventh chords are commonly classified as dominant seventh chords, minor seventh chords, major seventh chords, half-diminished seventh chords, diminished seventh chords, and the rarely encountered minor-major seventh chords. However, Berton’s approach is entirely different. In the sixth chapter of his *Traité*, Berton divides chords into three branches labeled as A, B, and C (Berton 1815, 24-27).

Branch A chords are defined as perfect chords, which encompass major triads, minor triads, and sometimes diminished triads. Branch A also contains chords with the 4th and 5th, chords with the simple 9th, and chords with the 4th, 5th, and simple 9th.

Branch B chords are defined as chords with the 7th and chords with the 4th, 5th, and 7th.

Branch C includes chords with the 7th and 9th, as well as chords with the 4th, 5th, 7th, and 9th.

A chord with 4th means that this chord has a 4-3 suspension, which is called a suspended 4th Chord in modern theory. The chord with a simple 9th in Branch A means it has a 9-8 suspension without a 7th.

In addition to the three branches—A, B, and C, there are also two categories: consonant and dissonant. Consonant chords include perfect chords and their inversions. In the Dissonant category, there are six classes: *dissonnants par augmentation*, *dissonnants par retardement*, *dissonnants par augmentation et retardement*, *dissonnants par suspension*, and *dissonnants par altération*.

Dissonnants par augmentation refers to chords that have an added 7th or both a 7th and 9th, and these chords are found in Branch B and C.

Dissonnants par retardement includes chords with suspensions, such as 4-3 suspensions or 9-8 suspensions.

Dissonnants par augmentation et retardement encompasses chords with both added 7th (or 7th and 9th) and 4-3 suspensions, and these are found in Branch C.

Dissonnants par suspension refers to chords placed on a pedal tone, with an example being the dominant chord on the Tonic Pedal, as described in Berton's *Traité*. It should be noted that the term *suspension* in French means a pedal tone in music.

Dissonnants par altération refers to chords where the 5th of the dominant seventh chord or the 3rd of the diminished seventh chord is lowered by a half step. In modern music theory, such chords are commonly referred to as augmented sixth chords.

Figure 1 example of chords by categories (figure made by author from Berton's *Traité*)

Chords with 4th (Sus4 Chord)

It can be observed that all three Branches include the “chord with 4th,” which is what we now refer to as a sus4 chord. This type of chord can be traced back to the Neapolitan school of the Classical era. In the *partimento* teaching of the Neapolitan school, students typically started by learning three classic cadences: *cadenza semplice*, *cadenza composta*, and *cadenza doppia*. The *cadenza semplice*, also known as the simple cadence, corresponds to the modern V-I cadence. However, both *cadenza composta* (compound cadence) and *cadenza doppia* (double cadence) involve the 4-3 suspension. In these two cadences, the 4th typically appears above the fifth degree of the scale, which corresponds to the upper part of the dominant chord (Tang 2023, 272). Of course, the 4th can follow the rules of suspension and appear above other chords as well. However, until the 19th century, composers still preferred to use the 4th on the dominant. According to Berton's description, some types of chord could only occur above the fifth degree of the scale. For example, the a chord with a 4th, 7th, and 9th can only occur above the fifth degree of the scale. In modern terminology it is called a dominant 9th sus4 chord.

Cadence and Sequence

Berton identified two primary cadences in his theory, known as “*authentique* (authentic)” and “*plagale* (plagal).” The authentic cadence refers to the progression from the fifth degree (V) of the scale to the first degree (I), while the plagal cadence involves a progression from the fourth degree (IV) to the first degree (I). He believed that these two cadences divided the scale into two tetrachords: one from I to IV and the other from V to I. These three chords, along with their inversions, could harmonize all the notes in the scale (Berton 1815, 81).

The authentic cadence also had another name, “*cadence parfaite*,” which further gave rise to three additional cadences: “*cadence rompue*,” “*cadence évitée*,” and “*cadence interrompue*.” Cadence can be imperfect and is referred to as “*imparfaite* (Berton 1815, Chapter 7).” It’s important to note that *cadence parfaite* and *cadence imparfaite* in Berton’s description do not directly correspond to the modern concepts of perfect authentic cadence and imperfect authentic cadence. In Berton’s terminology, *cadence imparfaite* referred to a situation where the *cadence parfaite* (V–I) was moved to a different degree while maintaining the same intervallic relationship (Berton 1815, 111, See Fig. 2 and 3). The technique of repeating a cadence by moving it to another degree is called *marche d’harmonie* in French or *sequence* in English. It comes from *basso movimento* in Italian *partimento*. One can see how this technique is used in Berton’s classroom in Aimé Leborne’s Notebook.

The interpretation of “*cadence évitée*” varies to some extent in the works of different theorists. For example, in Émile Durand’s writings, the definition of “*cadence évitée*” aligns with Berton’s “*cadence interrompue*.” According to Berton’s explanation, “*cadence évitée*” is a variation of “*cadence parfaite*” where the expected descent of the fifth degree in the bass is avoided, and

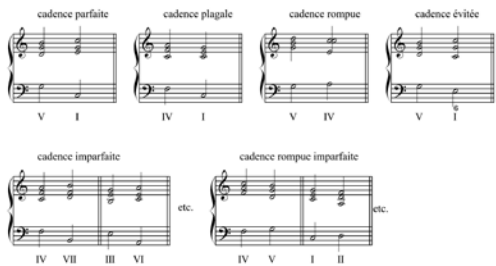


Figure 2 Cadences defined by Berton (figure made by author from Berton’s *Traité*)

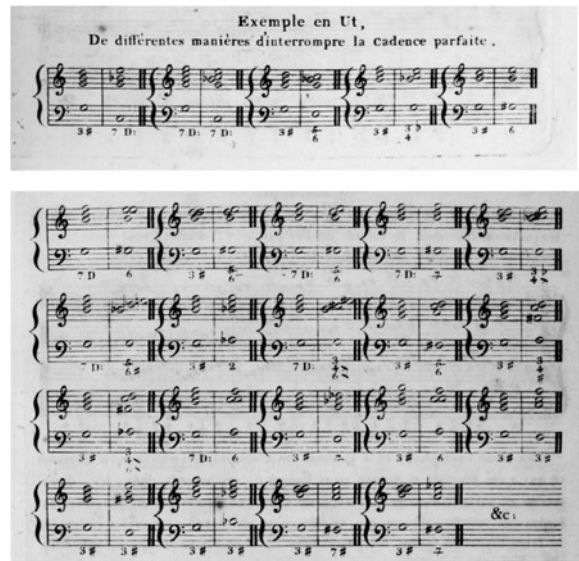


Figure 3 *Cadence interrompue* defined by Berton

instead, a descent of a third is used as a substitute. In modern terms, this can be understood as resolving to the first inversion of the tonic chord.

The definition of “*cadence rompue*” involves altering the “*cadence parfaite*” by having the bass move from the fifth degree to the sixth degree. Using the same interval relationship on other degrees, which involves an upward step-wise move of a second in the bass, one can create a variation called “*cadence rompue imparfaite*.”

“*Cadence interrompue*” occurs when, during the resolution of the dominant chord, the progression shifts to a chord from another key. Most often, this involves a chromatic alteration in the context of the fifth degree (See Fig. 3).

Aimé Leborne’s Notebook from Berton’s Course

Aimé Leborne (1797–1866) attended Berton’s course in 1812, and he later edited and left behind the exercises preserved in the library. Currently, this notebook can be found at the Bibliothèque nationale de France, titled *Cours d’harmonie de l’année 1813 / suivi par A. Leborne dans la classe de M. Berton, professeur au Conservatoire de Musique; M. Dourlen, répétiteur. 1812–1813* (Leborne)⁸.

From the title, it is evident that Dourlen served as the *répétiteur* for this course. Leborne meticulously noted the dates and authors of all exercises, providing us with valuable insights into the course’s curriculum at the time. While the course was under Berton’s name, Dourlen and Catel composed most of the exercises. Each exercise had to be completed twice, once in three voices and once in four voices. Judging from the contents of the notebook, the course’s overall structure closely aligns with Catel’s *Traité d’harmonie* rather than Berton’s *Traité*. This alignment is likely due to *Catel’s Traité* being recognized as the official teaching material at the Conservatory, necessitating that the courses within the institution align with this textbook. Catel’s *Traité* was structured according to the categories of chord; a design shared by many subsequent French harmony textbooks (see Table 1 and 2).

While Catel introduced the concept of root position and inversion of triads in the second chapter of his *Traité* (Catel s.d. or 1802?, 7–9), it did not affect the fact that Berton’s harmony course began with root position triads. After introducing basic interval principles and rules for progressions, Lesson 1⁹ commenced with a 20-bar exercise in 2/2 time signature. The exercise had only whole notes in the bass, and students were required to determine the harmony and write out the upper voices based on the given bass. It started with an ascending perfect fifth followed by a descending perfect fourth (C-G-D-A-E), then continued with an ascending perfect fourth followed by a descending major third (E-C-F-D-G-E-A), ultimately concluding with a continuous descending major third and ending on a *cadence parfaite* (see Fig. 6).

Unlike the functional harmony rooted in the German-Austrian tradition commonly seen today,

French and Italian harmony pedagogy of that time placed more emphasis on the intervallic relationships between the basses of chords. Both Berton and Catel would inform students, at the very beginning, that all degrees of the scale were available for use. Although Catel's *Traité* included a section dedicated to bass movements (equivalent to *basso movimento* in Italy), he still introduced bass movements in the triad section. In contrast, Berton, in Lesson 1, initially explained the progression as an imitation of *cadence plagale*, specifically *cadence plagale imparfaites*, as each pair of notes had the same interval relationship as the IV-I progression (ascending fifth and descending fourth, see Fig. 4 and 5). Berton meticulously described the possible progressions for each cadence, along with their inversions, added notes (*augmentation*), and potential progressions for suspensions in each cadential section. In the exercises, students were required to identify the category of cadence or various harmonic progressions and then complete the upper voices following the part-writing methods corresponding to that progression. Comparing Leborne's realizations (mm.1-5) in the notebook to the examples provided by Berton, Leborne employed different voicing arrangements and omitted some ornamental leaps between the alto and soprano voices. However, the overall approach and connections were entirely consistent (See Fig. 7). These bass notes moving in a specific direction will appear in individual exercises throughout the harmonic instruction. This technique from the Italian *partimento* proves that although sequences are theoretically formed by displacing a certain cadence and then repeating it, composers of the time did not think in this way when practicing, but rather remembered what figure of chords could be paired with what kind of bass movement. Cherubini's recorded many bass movement and how they are harmonized and ornamented in his *marches d'harmonie* (Cherubini 1847)¹⁰. A similar teaching method can be found in Fenaroli's *partimento*, see my research note for details about Cherubini and Fenaroli (Chen 2023).

Berton's course introduced the inversion of triads, specifically the 6th chord and 6/4 chord, starting from Lesson 4. Exercises from Lesson 4 to Lesson 10 often incorporated many of the progressions found in Lessons 1-3. Building upon these progressions, students were required to transform root position chords into inversions or introduce inversion changes within the progressions. Students who could identify the relationships between inverted and root position progressions were able to complete these exercises effectively.

Taking Lesson 6 as an example, its beginning corresponds to the progression introduced in Lesson 1. When removing the inverted chords, it becomes evident that the part-writing between the root position chords closely resembles the examples provided by Berton and Catel. The 6th chords and 6/4 chords seamlessly intermingle in these exercises, functioning almost like natural embellishments (See Fig. 8).

Lesson 11 covers passing tones (which, based on the examples, also include auxiliary tones). In the notebook, the lesson begins with the notation of a progression that serves as the prototype for

various examples. Subsequently, Leborne records numerous variations of this example below and outlines their principles on the left side of the page. All these examples are taken from Catel's *Traité*, indicating that Berton primarily relied on official Conservatory teaching materials rather than his own *Traité* when conducting his instruction (See Fig. 9 and 10).

Starting from Lesson 12, the exercises focus on the dominant seventh chords. Unlike modern textbooks, Leborne's notes reveal that Berton's course did not introduce all the inversions of dominant seventh chords in one go. Instead, the teaching progressed systematically, covering root position first, followed by root position and first inversion, and then all inversions. Although not explicitly labeled in the notes, it is evident from the exercises that modulation is introduced from Lesson 12 onward, with distant modulations appearing in Lesson 13.

In modern harmony instruction, the initial chapters featuring dominant seventh chords typically do not include modulations. This often results in students having to use various inversions of dominant seventh chords in their very first exercise, which can be challenging. To avoid repeating the same musical fragment, exercises are generally not too lengthy and do not extensively reuse the same inversion within a single exercise.

However, in contrast, Berton's courses, as well as many subsequent French harmony textbooks, always incorporate modulations into the exercises featuring dominant seventh chords. This means that exercises include dominant seventh chords in the same inversion appearing in different keys. This approach helps students memorize part-writing techniques for various inversions more

Table 1 Table of Contents from Catel's *Traité d'harmonie*

Preliminary Article: Intervals
Article I: General Theory of Chords
Article II: Major/Minor Perfect Chord, Diminished Fifth Chord
Article III: Dominant Seventh Chord
Article IV: Leading-tone Seventh Chord
Article V: Diminished Seventh Chord
Article VI: Major Dominant Ninth Chord / Minor Dominant Ninth Chord
Article VII: Passing Tones, Prolongations, Suspensions, Retardations
Article VIII: Cadences
Article IX: Various bass movements covering the range of the diatonic scale, with natural harmony and the most commonly used dissonant progressions
Article X: Genres
Article XI: Pedal
Article XII: Alterations
Article XIII: Modulation
Article XIV: On the Method of Figuring

Table 2 Table of Contents from Berton's *Traité d'harmonie*

:: Chapitre 1: Des trois parties constitutives de l'art musical
Chapitre 2: Des intervalles, de leurs rapports respectifs et de la manière de les représenter par des chiffres et par d'autres signes
Chapitre 3: Du mouvement des parties
Chapitre 4: De l'emploi des consonnances et des dissonnances et du tems fort et du tems faible
Chapitre 5: Des fautes d'harmonie
Chapitre 6: Des Accords
Chapitre 7: Des Cadences harmonique, et de la ponctuation musicale
Chapitre 8: Des trois genres en harmonie
Chapitre 9: Des Modulations, des Transitions, et des Transitions enharmoniques
Chapitre 10: Des phrase, de la Période, et du Discours musical
Chapitre 11: De la partition, et du caractère des différentes parties dont elles se compose
Chapitre 12: Des Pédal, et du Tasto solo
Chapitre 13: Du contre-point
Chapitre 14: Des Imitations
Chapitre 15: Des Cannons
Chapitre 16: De la Fugue

effectively while also enhancing their sensitivity to key changes. Subsequently, Lessons 21–31 introduce exercises on leading-tone seventh chord (referred to as “half-diminished seventh” in French) and diminished seventh chord, following a similar pattern as before. Initially, exercises focus on root position only before progressing to exercises that include inversions.



Figure 4 Berton’s example of cadence plagale imparfaites (*Traité* p.140)

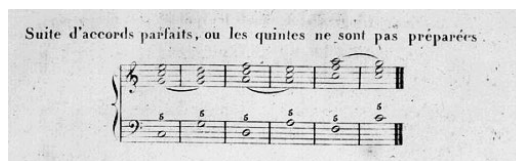


Figure 5 Same progression by Catel (p.14)

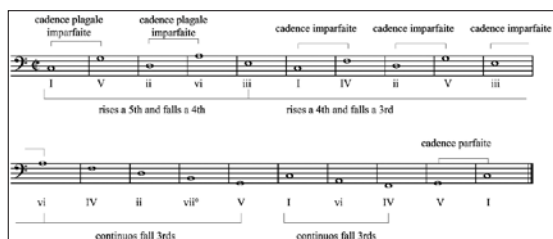


Figure 6 Bass line of Lesson 1 October 26,1812 (figure made by author from Leborne’s notebook)



Figure 7 Realisation of Lesson 1 from notebook



Figure 9 Lesson 11 on November 18, 1812

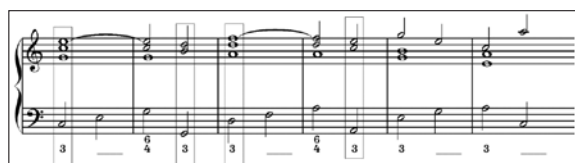


Figure 8 Beginning of Lesson 6 on November 6, 1812 (figure made by author from Leborne’s notebook¹¹)

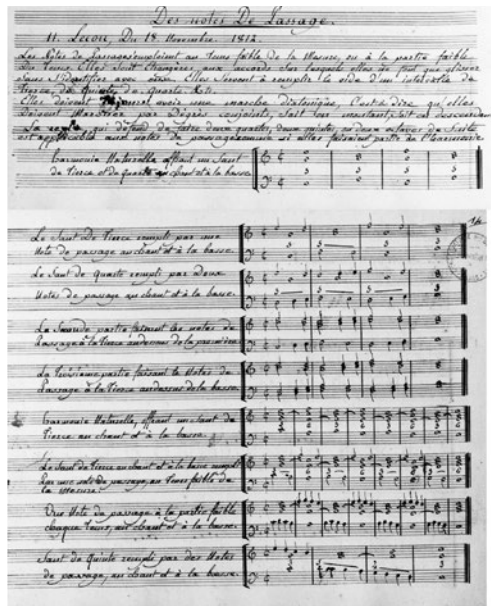


Figure 10 Same example from Catel' *Traité*.(p.16)

The Schema Theory Behind Berton's Pedagogy

Schema theory is a fundamental concept in cognitive psychology that explains how individuals organize and process information to better understand and navigate the world around them. A schema is a cognitive structure or mental framework that contains knowledge, expectations, and assumptions about a specific subject, situation, or experience. The core idea of schema theory is that people tend to match new information to existing schemas to facilitate comprehension, memory, and processing of that information. Schema theory can be applied to the domain of music cognition, where it helps explain how individuals process and make sense of musical information. In the context of music, a schema refers to a mental framework or cognitive structure that contains knowledge, expectations, and patterns related to musical elements such as melody, rhythm, harmony, and form.

In the field of music, by the influence of Gjerdingen and others, schema theory is often associated with the Neapolitan School (Gjerdingen 2020). In the teaching methods of the Neapolitan School, *maestros* frequently provide students with a musical example, and after students learn and practice that example, the maestro presents them with an exercise in which the same example or variations on it are repeated, aiming to enhance the students' understanding of the musical example. In modern cognitive psychology, such examples are referred to as "music schemas," since they contain essential characteristics that allow individuals to perceive a musical phenomenon, such as harmonic progressions or contrapuntal relationships (Gjerdingen 2020, 11-16). By repeatedly encountering music segments based on these schemas, while retaining their defining

features in practice, students can strengthen their cognitive abilities related to these schemas.

Traces of this teaching method can be found in the early stages of Berton's classroom. For example, the exercises on inverted chords at the beginning of Lesson 6 are actually variations of those found at the beginning of Lesson 1 (See Fig. 6 and Fig. 8). However, the most direct application of schema can be seen in Lesson 32 within the notebook, which introduces the concept of prolongation. Before the exercises, Leborne records a line of examples illustrating how the seventh of a root position seventh chord is prolonged. These examples appear in some form as a schema throughout this section and subsequent exercises. They may either be identical, transposed to different scale degrees, or retain certain characteristics (See Fig. 11). This teaching method bears resemblance to the pedagogical approach employed extensively by the Neapolitan school master Fedele Fenaroli in his *partimento* instruction, specifically in the section on dissonant intervals, much like in Berton's course. While there is no direct evidence to suggest that the teaching model at the Paris Conservatory at the time drew from Fenaroli, by considering Rousseau's high regard for Fenaroli's teacher, Francesco Durante (1684-1755), it is likely that Durante's teaching methods had an influence in France. Durante similarly employed this teaching model extensively in his *partimento* (Tang 2023, 275-276).

In this series of exercises, nearly every lesson introduce a new schema, encompassing various aspects. The exceptions are Lessons 33-34, which mark the first occurrence of exercises with an unfigured bass, and Lessons 38-39, which introduce progressions. In the beginning of Lesson 49, the schema explicitly mentions "*cadence simple*" and "*composée*," which are the French equivalents of *cadenza semplice* and *composta* (See Fig. 12). This further confirms the influence of Italian techniques on the harmony instruction of this era in France.

After a series of schema exercises and comprehensive exercises, in Lesson 54, for the first time, there appeared non-chord tones in the bass voice. Before this point, students were only required to add non-chord tones in the upper voices themselves. Subsequently, in Lesson 58, the recorded schema is a version of the dominant seventh chord for *cadenza semplice* and *composta*, along with their inversions (See Fig. 13). As Berton described in his *Traité*, all cadences can be transposed and inverted. Therefore, this schema is not a new one but a variation of the previous schema. It adds the seventh note to the dominant seventh chord, maintaining the characteristic of the fourth suspension appearing above it. The inversion is rearrangement of the voices.

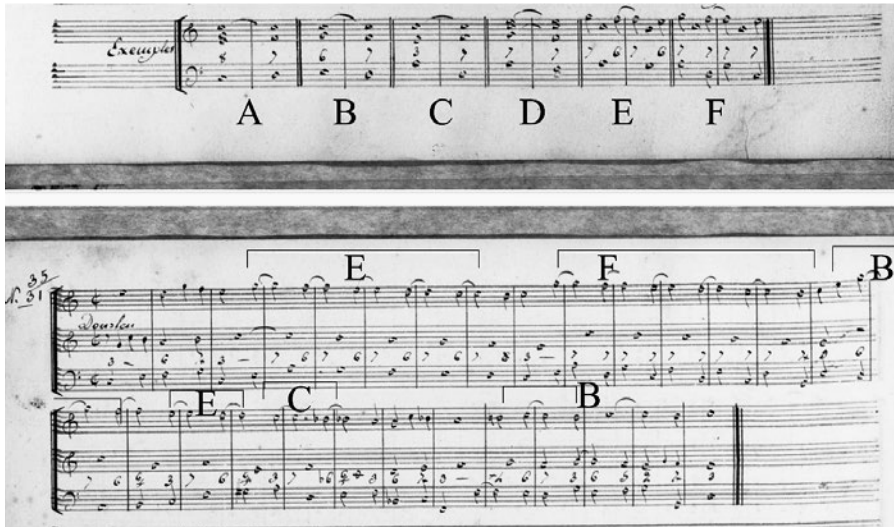


Figure 11 Application of Schema Theory in Lesson 32 (exercise No.31) on Jan 13,1813



Figure 12 Schema in Lesson 49 on Feb 24,1813



Figure 13 Lesson 58 on Mar 17,1813

Chord of 11th or 13th on Tonic and Altered Chord

The eleventh and thirteenth chords on the tonic note are created by placing a dominant seventh chord or half-diminished seventh chord above the tonic, falling under Berton's theory of "dissonants par suspension." This first appears in Lesson 64. As for the altered chord, or *dissonants par altération*, there are two types: one is the augmented sixth chord, and the other is

the dominant chord with a raised fifth (See Fig. 14).

After the instruction on the pedal tone in Lesson 70, there are no new chords introduced. However, the course doesn't end there. For the remaining part of the course, students continuously practice comprehensive exercises. Towards the end of the course, they prepare for the "Leçon du concours," which serves as the final exam or competition. These comprehensive exercises often incorporate various compositional techniques, such as the imitation of counterpoint and canons, as seen in Lesson 77 (See Fig. 15).



Figure 14 Schema from Lesson 64, 66, 68



Figure 15 Lesson 77 with imitation¹²

Conclusion

In conclusion, this investigation has provided some insights into the pedagogical methodology of harmony employed by Henri-Montan Berton, a distinguished French composer and music theorist, during his tenure as a harmony professor at the Paris Conservatory from 1795 to 1844. By scrutinizing Berton's seminal work, the *Traité d'harmonie*, and meticulously compiled records from his 1812–13 harmony lessons, courtesy of Aimé Leborne, several salient facets of Berton's didactic approach have been brought to the fore.

Firstly, a comprehensive examination of the pedagogical framework governing composition courses at the Paris Conservatory in the nineteenth century revealed a methodical progression in instruction, underpinned by rigorous examinations and competitive evaluations. This hierarchical instructional design facilitated the incremental acquisition of musical knowledge and competencies among students.

Secondly, Berton's distinctive figured bass notation system and methods, which deviate from contemporary conventions were mentioned, and their evolution in the context of French figured bass notation and methods may become a subject for future research. Additionally, his innovative classification of chords into three distinct branches labeled as A, B, and C, based on intrinsic harmonic attributes, was explored. This non-traditional pedagogical approach afforded students a comprehensive understanding of harmonic structures and their interpretive nuances. Also an exploration of the historical antecedents and continued relevance of chords featuring suspended fourths (commonly known as sus4 chords) in Berton's instructional repertoire was conducted. The genealogical lineage of these chords, tracing back to the Neapolitan school, was delineated, with noteworthy consideration given to their potential influence on subsequent composers. This historical nexus underscores the enduring impact of Berton's pedagogical legacy.

Thirdly, we conducted a detailed examination of Berton's categorization of cadential structures and how he employed specific teaching methods to enhance music comprehension and cognition. This concept, known as schema theory in modern psychology, contributed to a systematic and efficient teaching paradigm.

Lastly, the study elucidated the incorporation of advanced harmonic concepts, encompassing prolongations, non-chord tones in the bass register, modulation, and extended chords such as eleventh and thirteenth chords on Tonic, into Berton's instructional curriculum. These pedagogical elements were introduced progressively, nurturing students' aptitude to engage with progressively intricate harmonic constructs. Moreover, his teaching exhibits a progressive characteristic, starting with the introduction of dominant seventh chords and modulation, followed by the incorporation of basses without figures beginning with prolongation, and eventually adding embellishments to the bass voices in later stages. It differs from many common harmony teachings that compartmentalize content based on specific topics.

Overall, this research has afforded insight into the illustrious tradition of French harmonic pedagogy during the 19th century, with Berton's educational contributions constituting a pivotal influence in shaping the musical erudition of countless students at the Paris Conservatory. His structured methodological approach, innovative deployment of schema-based teaching method, and accentuation of practical exercises have bequeathed an enduring legacy in the realm of music theory and pedagogy.

Notes

- 1 Exam is the semester test determined whether students can attend the competition. The competition is the final test of the course, determined whether students can pass this course. Student who want to admit the advanced study must pass the previous course.
- 2 Leborne recorded the authors of all exercises on his notebook from Berton's class.
- 3 Berton seems not like some Rameau's theory. In Chapter 6 Section 19 of Berton's *Traité*, he criticized Rameau's theory.
- 4 I use ePub version which does not contain the same page number as the printed version.
- 5 I have sought to enshrine in this treatise the doctrines I received from you Sir (Cherubini), from Mr. Berton, from Catel and from Méhul. These doctrines, based on the ancient schools of Italian, are, I believe, the purest and the only ones that will survive the welter of so-called innovations that the public has been misled by in recent years. The masterpieces of great masters such as yours, Sir, are lanterns that will always lead lost travelers back to the right road.
- 6 The unaltered or in *inaltérés* means the perfect intervals.
- 7 In most twentieth or twenty-first century book.
- 8 This document only records the *réalisation* (answers) to the exercises, and who composed the *basse données* (the given bass parts), and does not label who wrote these *réalisations*. It is more likely that Leborne wrote them under the direct of *répétiteur* (Dourlen). The vast majority of the basses in the exercises were composed by Dourlen, and some by Catel. Except the harmony itself, no other information is recorded in this document.
- 9 Leborne recorded the date of every lesson, each lesson has one exercise. However, many French or Italian harmony textbook use the word Lesson (*Leçon*) to refer harmony exercise. Therefore, in the rest of this paper, I will use Lesson (with Capital L) to refer the exercise of this lesson.
- 10 Cherubini did not publish this collection. It was edited and published by Aimé Leborne after Cherubini's death.
- 11 I add the squares to show the original root position harmony progression which is the same as the beginning of Lesson 1.
- 12 E.g. First line, Soprano G-E-F#-G is imitated by the bass B-G-A-Bb. Measure 8 of the second line,

soprano F-G-F is imitated by the bass G-A-G. Measure 3 of the third line, Bass A-A-G#... and Soprano E-E-D... forms a one measure distance canon.

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