Harmony For Violinists:

Building Skills in Listening and Harmonic Awareness through Performance

By

Paran Amirinazari

A written project submitted in partial fulfillment of

the requirements for the degree of

Doctor of Musical Arts

(Music Performance)

at the

UNIVERSITY OF WISCONSIN-MADISON

2020

Date of final oral examination: May 6th, 2020

The written project is approved by the following members of the Final Oral Committee:

Soh-Hyun Park Altino, Associate Professor of Violin
Les Thimmig, Composition and Jazz Studies
David Crook, Professor of Musicology
Sally Chisholm, Artist in Residence and Professor of Viola
David Perry, Artist in Residence and Professor of Violin

Abstract

I. Written Project:

"Harmony For Violinists:
Building Skills in Listening and Harmonic Awareness through Performance"

This project consists of four chapters that use teacher and student duet playing to sequentially address two-note harmony, three-note harmony, and the application of acquired knowledge to musical examples from the violin étude repertoire. Four études are provided that include harmonic analysis and two original duet accompaniments appropriate for building listening skills and understanding implied harmony in repertoire. Teaching methods include singing, audiation, and addressing intonation using the principles of just intonation.

II. Sonata Recital: 12/10/14, Morphy Hall
Sonata for Piano and Violin in G major, K.301 – W.A. Mozart
Day Music for Violin and Piano (1971) – N. Rorem
Fantasie in C major, Op. posth. 159, D.934 – F. Schubert

III. Piano Chamber Recital: 5/14/15, Mills Hall
Piano Trio in B-flat major, D.898 – F. Schubert
Café Music for Violin, Cello and Piano (1986) – P. Schoenfield

IV. Concerto Recital: 2/14/16, Mills Hall
Violin Concerto No. 2 in G minor – S. Prokofiev

V. String Chamber Recital: 3/16/16, Morphy Hall
String Quartet No. 5 in A major, Op. 18 No. 5 – L.V. Beethoven
Six Bagatelles, Op. 9 (1913) – A. Webern
String Quartet No. 14 in D minor, D.810 – F. Schubert

VI. Solo Recital: 5/7/16, Immanuel Lutheran Church
Sonata No. 3 in C major for Solo Violin, BWV 1005 – J.S. Bach
Selections from 24 Preludes, Op. 34 (arr. Dmitri Tsyganov) – D. Shostakovich
Sonata No. 3 for Piano and Violin in D minor, Op. 108 – J. Brahms

VII. Lecture Recital: 5/31/18, Mead Witter School of Music, Room 1641
"Harmony For the Violinist"

Table of Contents

Acknowledgments

Thank you to my friends and family that have supported me through thick and thin; your check-ins, feedback, patience and morale boosting will never be forgotten. I could not have completed this project without Libby Bestul, dear friend and gifted editor. To Sally Chisholm and David Perry, it has been an honor to work with such inspiring musicians during my time at UW-Madison. Thanks to David Crook for nurturing my capability and giving the last nudge of encouragement in the final days of this project. Les Thimmig, it was your Jazz Improvisation class that forever changed my perspective on how to listen and process what I hear; you are the primary inspiration behind this project. To my teacher, Soh-Hyun Park Altino: I have learned so much from you about performing and teaching. Thank you for pushing and fueling my persistence, scholarship and musicality. I would not have been able to imagine this project without your dedicated guidance.

Preface

It is a common desire among violinists to be more confident and versed in harmonic language. This desire was expressed to me time and again by fellow graduate students, advisors, and professional musicians alike. During the early stages of this project, many conversations with colleagues revealed a sense of anxiety in relation to music theory, as well as a common lack of understanding between the connection of classroom knowledge and its application to playing the violin. As an individual who considers herself a "late-bloomer" when it comes to understanding music theory, I want to share in the form of lessons the transformational experiences that have made me more harmonically confident. This project is intended for high school students and will assist violin teachers in their efforts to promote more harmonic awareness during the private lesson through exercises that create the opportunity for students to hear, experience, and learn about harmony on the violin. Some exercises can be adapted for lessons with younger students. It is my hope that students who embrace these lessons may avoid some of the struggles I experienced at the collegiate level in music theory, as well as become better players through the skills they learn.

I first learned about harmony in music theory classes in college. During these courses I was taught a comprehensive explanation of music (that included harmony); however, it was difficult to relate these lessons directly to my instrument for several reasons. The class included a variety of instruments: a mix of string players, vocalists, brass players and woodwind players, the classroom lessons included figured-bass notation; finally, the score analysis was not led through the sounds I was imagining while looking at a score, but through calculations. Even though learning figured-bass is useful and informative for understanding music theory, it was foreign to my personal experiences of playing the violin. It was a difficult concept to grasp for

someone who primarily played a single-line melodic instrument, predominantly in the soprano voice. The exercise of reading and interpreting the notes on a score, as a way of understanding the music, felt like a math problem that I would solve based on the rules that I had learned. I learned more about how to understand music on paper, as opposed to music through sound, specifically the sound of my own violin. These experiences in music theory led me to the conclusion that harmony should be taught to violin students while playing, in order to connect harmonic knowledge with the sounds they hear and create on their instrument.

In addition to the frustrations I had in music theory classes, my lack of formal training on the piano produced an extra challenge for me. Typically, to complete a music degree students are required to learn basic piano to supplement music theory courses. The piano player can see all the keys when they are sitting at the piano and they can play multiple notes simultaneously. This makes the piano a useful instrument for teaching music theory and harmony because students are able to look down at their hands and see what notes are being played. This is especially helpful for learning chords and progressions that single-line melodic instruments like a flute or clarinet are not able to play. However, adding the additional task of learning my way around a foreign instrument was another reason I came to the conclusion that understanding harmony on a musician's primary instrument is an important building block, creating a deeper understanding of the music they are studying in their personal practice rather than on a different instrument. From my experience, I also believe that having a solid understanding of music theory on the violin will help violin students to better understand music theory in their college courses.

To reiterate, for me the difficulties of the basic undergraduate theory class — the mixture of instruments in the course, the written (only) exercises for learning harmony, the necessity of learning the piano, the difficulty in understanding the direct application of the violin in the

classroom, and bass-note driven lessons — made for a very complicated and confusing learning experience. I became even more aware of my limited skills in hearing and understanding harmony through my experience in a graduate-level string quartet. String quartet playing is a harmonic experience in "real time." Each player must know what is occurring harmonically when the group discusses musical elements such as phrasing, tuning, blending, and expression. Prior to this experience, the only way I knew to prepare and understand harmony was through classroom work such as score study, analysis, and learning what was on the page without the violin. In order to comprehend a sonic occurrence, I needed to first study what was in the score. Score study is essential in any chamber music setting, yet I continued to feel a disconnect, even after studying the score. Because the theoretical information did not connect to a sound or a feeling, like the sonorities of the string quartet, I did not have a clear sonic understanding of what I had studied. In order to connect the two, I had to adjust how I listened when playing in the quartet. I was not yet able to think about harmony in "real time." Although I began recognizing this problem as a quartet member, it took years before I fully grasped the disconnect. For me, jazz improvisation tied it all together.

This project was set in motion during the first year of my doctoral studies in jazz improvisation when every note I chose to play on the violin was determined first and foremost by a harmonic context. I was creating melody based on harmony, and for the first time in my life I understood that every note I played was guided by harmony. Jazz class involved playing our instruments and the class included the same diverse instrumental representation that existed in my undergraduate theory classes. The first semester class included three violinists, a violist, two cellists, two pianists, one clarinetist, one bassoonist, and a saxophonist. We played our instruments in every class period, and listening (as opposed to reading sheet music) became the

primary tool for learning the materials we were playing. Through this we learned about harmony while rapidly sharpening our listening skills. This was a form of applicable music theory that transformed my relationship to music. Discussing topics I had previously learned in music theory, but this time through *playing the violin*, made me realize that the initial point of contact for theoretical information should be through what is heard and both emotionally and physically felt on an instrument. This tangible element of learning revealed a vivid impression and understanding.

In jazz class, forming simple melodies over a series of chords as they were being played, I was experiencing the actual sensation of creating harmony. Rekindling my intuitive understanding of harmony as a violinist helped me connect with what I had learned in the classroom years before.

Improvisation is an art and technique that requires a command of music theory, beyond harmony. The goal of this project is not to teach improvisation (even though it could be a fantastic by-product) but to use similar tools to help young classical violinists to find comfort and familiarity with harmony, as I was able to find with jazz. This project intends to teach harmony from a performance perspective, with a focus on playing the violin and providing support for teachers in doing so. By teaching the fundamentals of music theory through listening and singing, in addition to the necessary mechanics of playing the violin, my hope is to encourage a more holistic approach to teaching the violin.

In my experience, it is crucial for the developing student to gain ear-training tools that will introduce them to harmonic understanding. Using the sounds of their instrument, the violin, could improve this skill-building process. This could also be supported when harmonically important moments are identified in repertoire. Improvisation taught me how to utilize harmonic

understanding in forming a melody and helped me understand how melodic lines belong to chords. This transformed my relationship to music theory, my approach to understanding harmony, and my confidence as a performer and teacher.

Creating an understanding of how melodic musical language translates into harmonic information, and how what is played on the violin relates to an underlying harmony could help students better infer the harmonic underpinnings of the music they are playing. If this information was regularly stressed before students felt the pressure of classroom theory, violinists might be more receptive to relating what is taught in the classroom to their private practice. The inclusion of short lessons in harmony would impress its importance and universality. For a young musician, the private lesson could be the most treasured hour of the week.

As a young person from an immigrant family, my desire to play violin was not easily realized. The financial pressure of weekly private lessons made my dream of learning an instrument almost impossible. It was only because of the help of many hospitable and supportive organizations that I was able to acquire a violin and begin lessons. In the following years, as I became more serious about the violin, there was pressure to take piano lessons to supplement my violin studies. I believe that because I was not able to pursue supplemental lessons in piano, I struggled in conservatory theory class alongside classmates who previously had the opportunity. This project provides teachers with detailed exercises that specifically address the topics of harmony I find most useful when learning the violin. Addressing harmony in the private lesson with students will also support those without the financial means for supplemental lessons in music theory or piano.

On a path to the current version of this project I explored different approaches to teaching the harmonic building blocks, such as the circle of fifths and intervals using the violin. These initial pursuits challenged my understanding of the topics and impressed upon me the immensity of the subject of harmony. Ultimately, preparatory experiments helped crystalize essential teaching objectives and learning styles, such as utilizing the private lesson to play duets, and the need for singing and aural training. Many new teaching approaches for all levels of students are integrated into my pedagogy as a result of these explorations of harmony. I hope that my readers and future teachers can embrace the lessons that I am sharing through this project.

Chapter One: Design of Project

This project will assist violin teachers in approaching harmony in private lessons through the use of short exercises that address the fundamentals of harmony while playing the violin. All exercises and teaching approaches utilize the student and teacher playing duets to create harmony. The primary repertoire sources are scales, arpeggios, and études that violinists commonly learn in their teenage years. The goal of this project is to present information in a clear and stimulating manner that will support the educational interests of developing violinists. I hope teachers will be able to effectively apply these ideas to their own teaching and use them as inspiration for new and clever ways to demystify the experience of learning harmony. The ultimate outcome is to help students succeed in their efforts of becoming skilled and intelligent musicians.

The project consists of three chapters sequentially addressing two-note harmony in the form of intervals, three-note harmony in the form of triads, and the application of acquired knowledge to musical examples from the violin étude repertoire. The goals of the lessons in these chapters are to help students build listening skills and introduce students to important terminology that will better equip them to hear, identify, and communicate about harmony in the music they are playing. As a result, students will be capable of working through musical roadblocks, such as faulty intonation, musical pacing, and artful phrasing, because they will be more comfortable with harmony and capable of using the terminology to communicate what they are hearing and working on.

The music violinists play is predominantly single-line melodies, with occasional double-stops (with the exception of unaccompanied works of, J.S. Bach and Eugene Ysaÿe, for example, that are typically taught in college or to advanced high school students). Violin music visually

follows a horizontal trajectory, with double-stops usually being the only vertical component. By definition, harmony requires the simultaneous sounding of multiple notes. The secondary part, or double stop, necessary to create a vertical harmony in violin repertoire is not often visually present. In other words, violin repertoire, unlike piano music, usually does not display multiple notes in vertical form to help determine harmony. This increases the demand on the violinist to understand harmony based on a melodic line, as well as to have astute listening skills. Through the exercises in this project, violinists will become progressively better equipped to hear and understand the underlying harmony in the violin repertoire. This project demonstrates that the best way to encourage young musicians in their artistic pursuit is to nurture a strong propensity toward listening and provide tangible examples of how listening improves the violin student's ability to recognize, comprehend, and label harmony in their own playing.

A phrase from former teachers, "if you can sing it, you can play it," is a good reminder of a dependable tool - the musician's ear and voice. A fundamental teaching method in this project is the use of the voice to sing notes before playing them on the violin and to be able to utilize inner hearing to imagine a pitch before singing or playing it. Exercises often require alternating between singing and playing. Singing is expected of musicians entering the field of music, usually in the form of sight-singing or solfége classes, and its inclusion in private lessons early on will help students build the strong aural skills to succeed in classroom singing.

In these exercises students are asked to hear a note in their head before playing it on the violin. This concept is related to the term *audiation,* which I first came across at a seminar given at the Wisconsin Music Educators Association Conference in 2018. I was unfamiliar with the concept of audiation, yet it is the exact term for what I have heard so many times from violin teachers: "hear it in your head." "Audiation is the musical equivalent to "thinking" in language.

When we listen to someone speak we must retain in memory their vocal sounds long enough to recognize and give meaning to the words the sounds represent. Likewise, when listening to music we are at any given moment organizing sounds we recently heard as audiation. Music Learning Theory (which focuses on the teaching of audiation to explain how music is learned) is concerned specifically with the tonal and rhythm dimensions of music." [1]

Even though the seminar was specifically for choral educators it greatly contributed to my knowledge on the subject of audiation. The presenter's explanation of the act of hearing and singing notes in one's head was very similar to what I had been taught to be the "magic ingredient" to better intonation, secure musical memory, and the origin of many of the proposed teaching methods in this project.

Another important component to the exercises is asking violin students to notice and describe the harmonies they hear and feel on their instrument (violin or voice) as well as how these sounds make them feel emotionally. Simon Fisher describes this concept as "the feeling of the sound" and the "sound of the feeling."[2] Challenging students to explore how notes feel on the instrument as well as how a sound makes them feel emotionally will allow students to more actively experience how the ear, voice, and instrument are connected. Challenging them to verbally describe it will help to make the terminology and vocabulary more concrete.

Intonation and the correct tuning of notes and harmonies is a substantial topic throughout this project. In *Cello Mind*, Hans Jørgen Jensen says "Good intonation is an intuitive skill that requires sophisticated inner and outer hearing."[3] In the case of this project, this is a skill that can be learned and will be guided using *just intonation*. Just intonation is a relational pitch system

[1] "Audiation," *The Gordon Institute for Music Learning*, accessed April 1, 2020, https://giml.org/mlt/audiation.
[2] Simon Fischer. *Practice, 250 step-by-step practice methods for the violin.* (London: Peters, 2004), 293.
[3] Hans Jørgen Jensen and Minna Rose Chung, *Cello Mind: Intonation and Technique* (Chicago: Ovation Press, 2017), 25.

based on the natural harmonic overtone series.[4] In this method the pitches constantly adjust to different tonal centers. In double-stops and chords it is important to first determine which note is the key center and then let the other pitches adjust to the dominating pitch.[5]

Jensen also suggests that, "understanding the theories about intonation can help refine the ear." The usual explanation of intonation is often from a scientific perspective, which can be difficult to understand and hard to relate to violin playing. However, the harmonic overtone series, can very easily be explained *and* demonstrated using string instruments, such as the violin. An image of the harmonics on each open string of the violin that correspond to the overtone series is provided in Appendix 1. Using the diagram in Appendix 1, it is interesting to note that the resonating overtones of a fundamental note form a perfectly in tune major triad.

The overtone series is the basis of all tonal music and the foundation of our understanding of Western music. It is also present in nature and through man-made sounds, from chirping birds to blasting fire sirens.[6] It can be compared to the visible rainbow created by seeing light refracted through a prism. The prism causes the light to refract and show the spectrum of colors it contains. The overtone series can be likened to the spectrum of colors refracted. These overtones ring along with a fundamental note, to which they are mathematically related. The overtones resonate as part of the total sound, as they are not always distinguished individually. The greater the number of overtones activated, the more full-bodied and brilliant the sound. Just intonation utilizes the wave frequencies and overtones and their relationship to one another to locate when frequencies coincide to create the greatest resonances and fullest sound.

---

[4] Jensen and Chung, *Cello Mind,* 6.
[5] Ibid.
[6] Ibid, 9.

Violinists will most commonly need to understand how to tune using both just intonation and equal temperament. In string and wind ensemble settings musicians will need to be well-versed in just intonation. However, when playing with a piano, students need to understand the qualities of equal temperament. Equal temperament is a tuning system that divides the octave into twelve equal semitones to enable the instrument to play in all keys with minimal flaws of intonation.[7] This project only addresses just intonation, but it is important for teachers to explain and demonstrate the difference between just intonation, and equal temperament.[8]

There are three literature sources that have strongly influenced this project. *Cello Mind* is an exceptional resource for any string player. It is a great resource for learning and understanding the different types of intonation systems that exist. Even though it is specific to cello, many exercises are transferable to other string instruments. For teachers, this is a reliable resource on how to talk about intonation.

Barry Ross's *Exquisite Intonation* provides exercises and explanations for harmonic and melodic tuning. Harmonic tuning is tuning in accordance with harmonic principles, particularly when more than one voice is sounding.[9] Melodic tuning is what teachers commonly call "expressive intonation;" making intonation decisions based on a musical function. For example, playing a leading tone higher to more expressively demonstrate its desire to move to the tonic is an example of expressive intonation.[10] This project advocates for harmonic tuning, even when there is not more than one voice evidently sounding.

All harmonic analysis in this project is notated using functional upper and lower case Roman numerals. The Roman numerals are used to associate a major or minor (as well as

---

[7] Jensen and Chung, *Cello Mind,* 5.
[8] Both are addressed in more detail in Chapter Two.
[9] Barry Ross, *A Violinist's Guide for Exquisite Intonation*. (Fairfax, VA: ASTA, 1944), p. 32.
[10] Ibid*,* 24.

diminished and augmented when applicable) tonality to a specific piece of analytical information. An upper case Roman numeral represents major harmonies and lower case Roman numerals represent minor harmonies. At the outset of this project I found myself trying to engage my students of all levels in a conversation about what they were playing and harmonically hearing. Students had a great deal of difficulty during these lessons, primarily because they did not have the conversational tools to discuss and explain what they were hearing and playing. From this I concluded that without a resource for learning the foundational elements of harmony, such as intervals and terminology, lessons on harmony would be too complex for students to understand.

The teaching methods used in this project focus on simplicity, avoid over-teaching, and provide information gradually, so students don't become overwhelmed and confused. Teachers are encouraged to provide small amounts of information at each lesson and review as frequently as possible to help the topic stay alive and current for students. I recommend that teachers leave out what cannot be quickly explained in words and demonstrate it on the violin instead.

Repetition and review will keep students' interest alive, help create new connections with the topic, and provide a foundation for the next lesson. I have incorporated the term "vamp" into my teaching from jazz practice to replace the word "repeat." Vamping is repeating a short passage of music. When working on a section of music, I have found the term vamp helps students stay engaged in the exercise without focusing on "how many times" they are being asked to play a phrase. This replacement has helped to build an expectation of repetition for the sake of finding comfort and familiarity with a section, rather than keeping track of which repetition they are on.

Major keys that utilize open-strings are best for beginning lessons on harmony. For this reason, all musical examples in this project will be in major keys, and lessons without a musical example will be in the sample key of G major. Major scales beginning on an open string such as G major, D major, and A major are often the first scales young violinists learn because they employ the maximum natural resonance of the violin and include uncomplicated fingering patterns. They also provide a harmonically simple and easy starting point for lessons. Minor keys present an element of complexity that requires familiarity with harmony, such as intervals and scale degrees. Minor scales also come in three common forms: natural, harmonic, and melodic. For beginning lessons in harmony it is best to keep the tonality and scale options simple, and thus, minor keys are not used in these exercises.

Two primary bowing patterns are used in exercises, slurred bowing and repeated slow bows. The slurred bowing maintains linear relationships between notes and assists in sensing connections during string crossings. The repeated slow bows are used in exercises that require more time for thinking, and they allow students to listen without feeling rushed by a bowing pattern. All exercises should be executed in a slow tempo; I suggest the metronome marking of a quarter note at 45 beats per minute as a starting point.

Students are encouraged to play exercises without vibrato to help listen more carefully to tone, intonation and intervallic relationships. If students are not accustomed to working on exercises without vibrato, teachers may need to point out tension in the left hand and remind students to release it.[11] Playing exercises with a malleable left hand will allow for more accurate tuning and comfort.

[11]Vibrato can often assist in relaxing the left hand and students may overcompensate for the lack of vibrato by squeezing and pressing harder. This extra tension creates challenges when adjustments are needed for intonation or finger placement. Ideally, students should be accustomed to working with and without vibrato.

There is an enormous variance between students with regard to their background in music theory and harmony. This project has been created to address the deficiency for those students who have not studied harmony. These lessons can help a studio of violinists, either in individual lessons or in group class settings, to be better prepared for future learning opportunities in music theory. Some exercises can be implemented in a group or classroom setting. I encourage teachers to explore working on listening, singing, and discussing harmonic topics with their students in group settings. This can save time in private lessons and reach more students while inspiring students to work together in their effort to learn about and practice harmony.

Chapter Two: Skill-Building

This chapter builds listening skills through experiential and aural learning and consists of three overarching lessons addressing the fundamentals of harmony: *Key-Centric Thinking, Key Preparation Lesson,* and *Singing and Playing.* Each lesson is supported by exercises played on the violin by the student and a duet played with the teacher. The teacher can choose to utilize specific exercises independently or put them in an order that best meets the student's needs. The lessons are sequenced in what I believe to be the most effective progression for teaching these fundamental topics. Although this project was created with the more advanced student in mind, Chapter Two exercises could be taught to younger, motivated, and committed students that understand key signatures and have progressed to a skill level equivalent to Suzuki Book Three. The exercises are short, simple, and use basic terminology that should not be confusing for younger students. For lesson planning purposes, the teacher can expect that each lesson will take approximately fifteen minutes, and with consistent integration potentially less time.

This project teaches harmony using a methodic approach of isolated exercises (Chapter Two and Three) in conjunction with the application of exercises to repertoire (Chapter Four). This method is akin to how physical techniques are currently taught. When a student learns a new physical concept for the first time, such as shifting or vibrato, the technique typically is practiced in an isolated manner, using exercises that focus only on the new concept, and then in conjunction with its application to repertoire.

The exercise directions for Key-Centric Thinking and Key Preparation include a step-by-step narrative that provides useful language for teachers who may need a sample script before finding their own language and approaches. The exercise application section uses a musical example when applicable to demonstrate the exercise; it also includes more detailed scenarios

teachers may come across during exercise implementation and options for elaboration. These lessons, and their corresponding exercises, provide a platform for teaching and experiencing harmony in violin studies, such as études (demonstrated in Chapter Four.)

The typical three-octave scale has been reduced to its one-octave counterpart. All musical examples for the exercises in Chapter Two are short (no more than 8-16 measures) and simple, similar to folk tunes with easy melodies and songs for beginners. Since the exercises are simple enough for students to learn without sheet music, most of the provided musical examples are intended for the teacher's eyes only. Students will begin by listening to the directions and sounds of the teacher's instrument, and eventually to those of their own. This allows students to more easily lead exercises with their ears versus their eyes.

Key-Centric Thinking

For many students, accidentals denote a specific adjustment of a pitch, which is translated into a half-step movement of their finger. This exercise creates a practice of scanning the music prior to playing, to help students associate accidentals with *keys* and functions of harmony, as opposed to simply moving a finger up or down by half-step. Students will identify key areas[12] outside of the home key through new identifications of accidentals. Scanning is a deliberate step that needs to be actively built into the learning process and this exercise guides the scanning process toward a harmonically-oriented one.

Before proceeding through this lesson, it is crucial for students to be proficient at identifying major keys based on the key signature. In my private violin studio I ask older students to memorize the key signatures of up to four sharps and four flats and their

[12] In the upcoming exercise directions, *key areas* are described as: sections that are in a different key from the home key are called "key areas" and may be as short as one or two measures.

corresponding major scales using flashcards.[13] When a student plays scales in a private lesson, I ask them to speak the name of any accidentals in the scale that are a member of the key signature. I find this to be a helpful method for connecting the accidentals in a key signature to the scales students are practicing. For any new piece of music a student is about to learn, I ask them to identify the key before playing the violin. Before playing a piece of music during the lesson, I frequently ask students to play a scale in the key of the piece.

There are a few factors to take into consideration when deciding on an étude to use for lessons in harmony. In this case, lessons were chosen specifically for key-centric thinking. Fiorillo, Étude No. 3 perfectly demonstrates an étude whose musical and rhythmic content are predominantly scalar and simple. Scalar music provides an accessible format to teach the key-centric lesson. Scales present the pitches of a key in a clear and familiar format since they are commonly used to learn and practice playing in different keys. For beginning lessons in key-centric thinking it is important to choose an étude that is explicitly scalar with minimal rhythmic variety, to maintain focus on seeing key areas. Once a structure for listening to harmony in simple études is built, students will be more capable of hearing harmony in études bearing greater rhythmic and musical complexity, such as the Paganini Twenty-Four Caprices for Solo Violin.

Another significant variable to consider is the harmonic complexity of the étude. In the early lessons, it is essential to utilize études that demonstrate closely related key areas. Fiorillo, Étude No. 3 is an excellent example of this because the suggested keys are one sharp or flat away from the home key of C major. It is to the advantage of both student and teacher for the initial lessons in key-centric thinking to use similar musical examples to Fiorillo, Étude No. 3, where

[13] On one side of the flashcard there is a picture of the key signature and on the other side of the flashcard there is the name of the major scale and the names of the accidentals that appear in the key signature

the keys are single accidentals apart. This allows the student to more easily relate the key change to the home key signature and to avoid having to manage too many accidentals.

The first pieces used should clearly be in a major key. Fiorillo, Étude No. 3, found in example 2.1, is a good example of a piece that is clearly in a major key, confirmed through the major scale in the measures leading up to the final note, as well as through the major scale in the first measure.

Exercise Direction:

Looking at a piece of music, determine the key, and look for any accidentals that may indicate a key change in the music. What key could this piece be in or include?

Look at the last note of the piece along with the notes in the first few measures to see if they help distinguish the key. Once the key of the piece has been determined, it will be called the "home key."

Scan the music for accidentals that may signify possible sections of music that are in keys other than that of the home key. The sections that are in a different key from the home key are called "key areas" and may be as short as one or two measures. This step is to help form an idea of what keys may exist in the piece. Most of the time a cadence needs to be present in order to have confirmation of a key change, which will be addressed in Chapter Four.[14]

When you find an accidental, how is it different from the notes in the scale of the home key?

[14] New keys are usually confirmed with the presence of a cadence. At this point in the learning process cadences and arrivals will not be immediately addressed. It is important for teachers to use language in this exercise that helps students learn that the key areas being discussed are *possibilities* that help with the initial experience of playing. Later, this knowledge will be supported through the understanding of cadences, chords, and progressions.

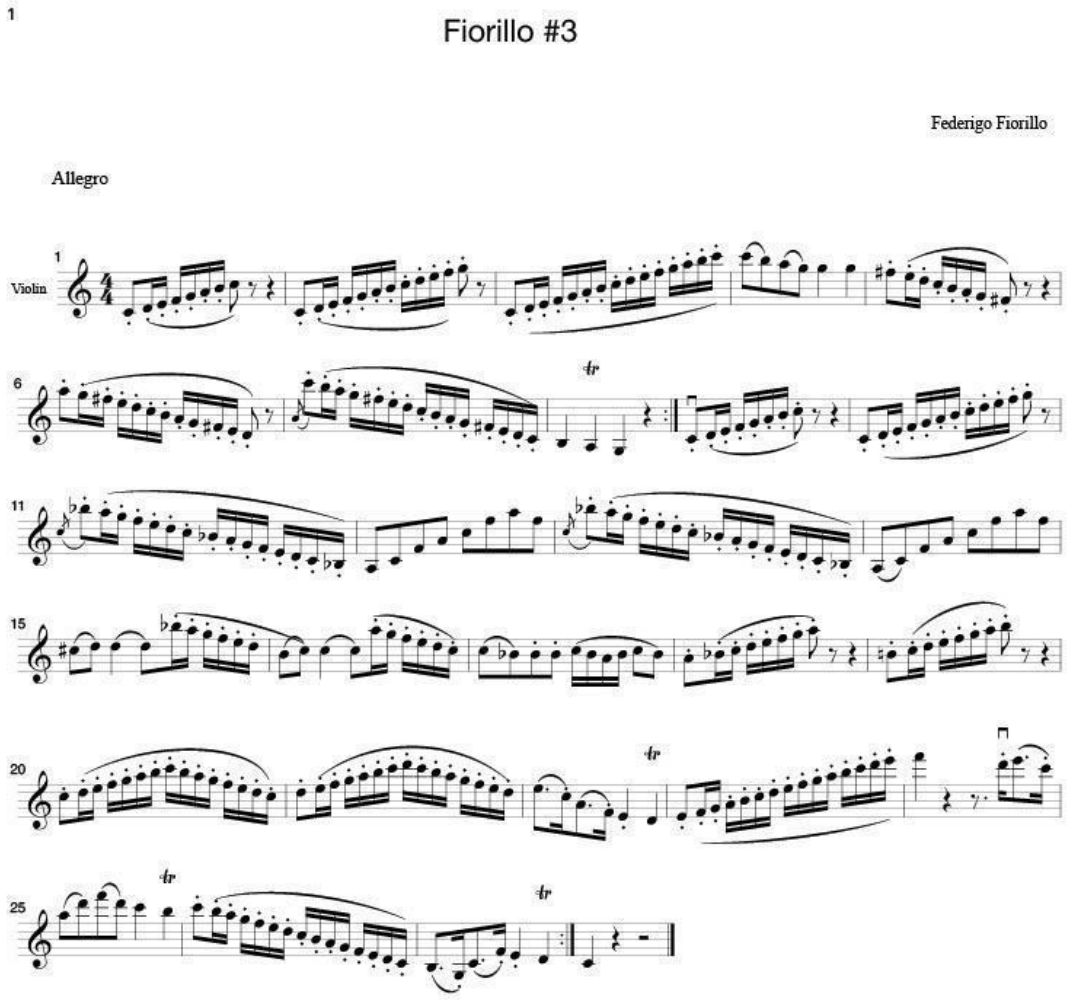
When a new sharp or flat is present, compare the accidental to the home key to see if it produces a new key. All the necessary sharps or flats of the new key must be present in the music to create a new key area.

In sections with more than one accidental, look for a pattern. If a pattern of repeated accidentals is identified, compare the group to the existing key signature to determine possible key areas. If an accidental is present, but does not follow the order of sharps and flats needed for a new key, keep searching to see if more, or different, accidentals can be found. If they do not readily and easily fit into a key signature, they are to be called "ornamental" accidentals. Skip over the ornamental accidentals, for the time being, until you have the opportunity to hear them in context or have more information.[15]

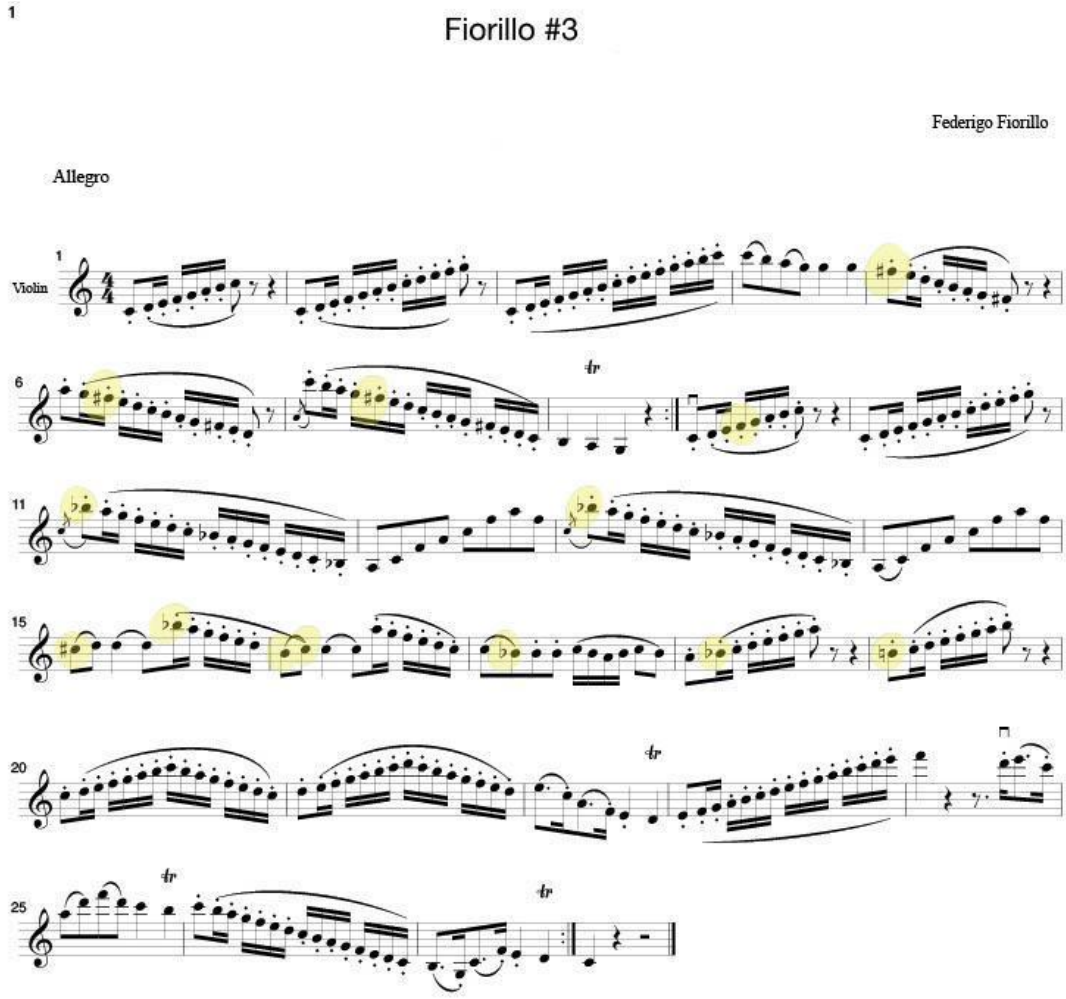
[15] These ornamental accidentals may be ornamental, chromatic, or suggesting altered chords. For the beginning lessons, teachers should feel comfortable not addressing them in detail.

Exercise Application:

Example 2.1: Fiorillo, Étude No. 3. The following example is intended for student use

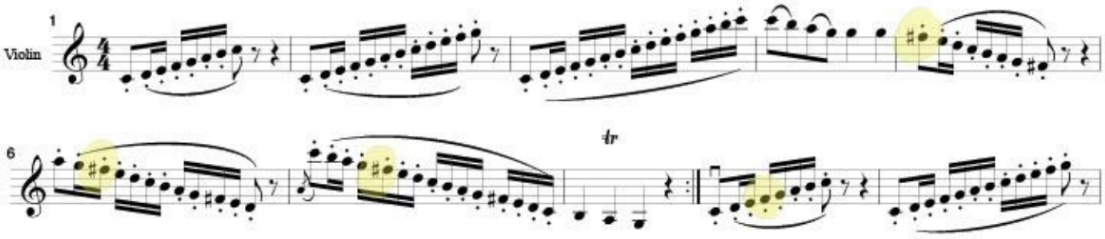


Example 2.2: Fiorillo, Étude No. 3 with highlighted accidentals



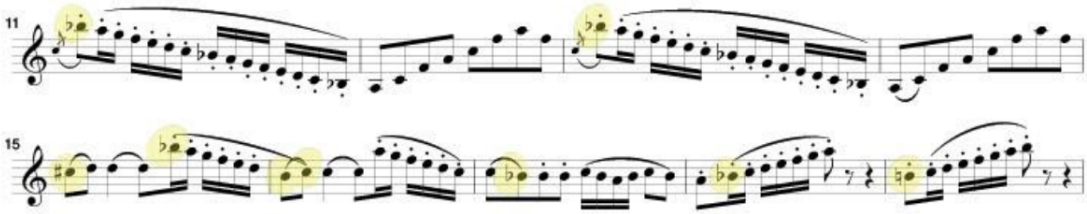
Upon first glance, the scale in the first measure, beginning and ending on C, clearly indicates that the home key is C major.

Example 2.3: Fiorillo, Étude No. 3, mm. 1-10 with highlighted accidentals



The first accidental that appears is F-sharp in mm. 5-7, which signals a key area of G major. The original F-natural returns in m. 9 signaling the return of the home key.

Example 2.4: Fiorillo, Étude No. 3, mm. 11-19 with highlighted accidentals



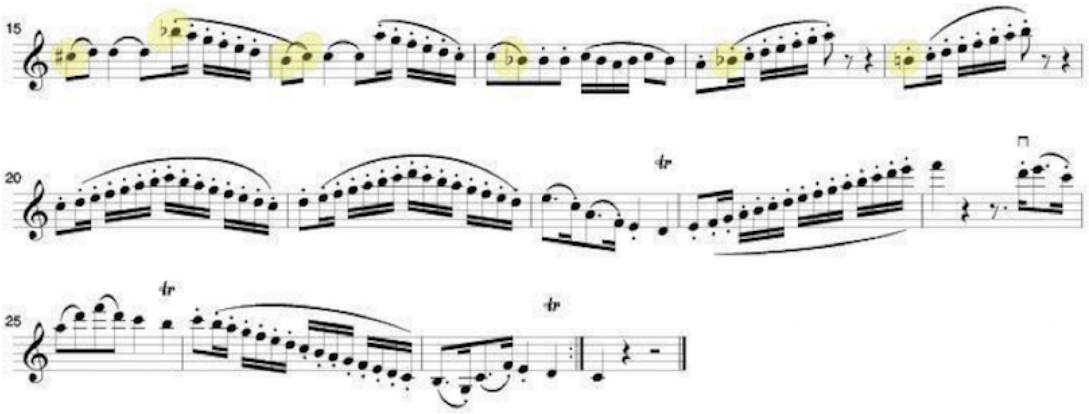
Beginning in m. 11, a B-flat is introduced which signals F major that seems to continue for four measures, at which point a C-sharp (alongside a B-flat) is introduced in m.15. The B-natural and C-natural return in m. 16, and the B-flat returns in mm. 17 and 18. The C-sharp in m. 15 is a good example of an accidental that clearly falls into the ornamental accidental category because a C-sharp and B-flat together do not immediately suggest a new key.[16] Because of the lack of a cadence, the teacher should be able to see mm. 15-17 as a unit that remains in F major. After hearing or singing the measures, it is evident that the C-sharp in m. 15, and B-natural in m. 16, are accented non-chord tones (non-harmonic tones, because they are not a part of the chord, that fall on a strong beat).[17] For the student on the other hand, without hearing the étude, the B-natural in m.16 could signify a return to C major since it negates the B-flat needed to be in F major, and a return to F major in mm. 16-17. These three measures are a great example of needing more information to accurately determine what is occurring and should be isolated with the student after the étude is played.

[16] C-sharp and B-flat however could signify the key of D minor. In the D harmonic minor scale, the sixth and seventh scale degrees are B-flat and C-sharp. It cannot be confirmed without playing or hearing it, or without the presence of a cadence to D minor, which does not exist.

[17] These non-chord tones can be addressed in future exercises once the student has built and advanced their listening skills from chapters two and three.

When reviewing mm. 15-16 with the student, incorporate the duet accompaniment to help the student hear how the ornamental accidentals sound.[18] Students should be encouraged to define them as belonging to a new key, or being ornamental. The teacher can explain that ornamental accidentals can provide an element of color or character without changing the key they are playing in. While playing the étude, the student can listen and feel if the measures with the ornamental accidentals sound like a new key, or like they are adding color or character within the established key.

Example 2.5: Fiorillo, Étude No. 3, mm. 15-28 with highlighted accidentals



The B-flat returns in m. 17 and all accidentals return to the home key beginning in m. 19, signaling the return to C major.

Once the student has completed the Key-Centric Thinking exercise for the whole étude, it is helpful for the student to list the identified key areas to form an image of the overall harmonic journey of the piece. In the case of Fiorillo No. 3, the key areas are:

C major--G major--C major--F major --C major

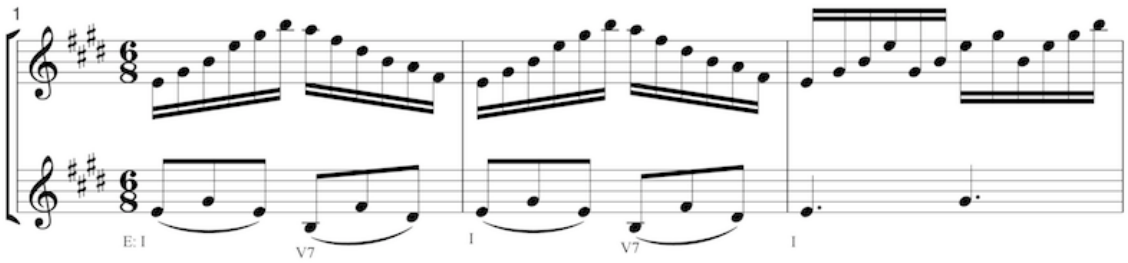
All the keys differ by no more than one sharp or flat from the original key meaning the key areas are closely related. The harmonic journey for Fiorillo, Étude No. 3, is one that stays close to

[18] The accompaniment can be found on page 91.

home, like moving between different rooms in a building rather than out of the building and around the neighborhood. This exercise reveals which keys (rooms) are traveled to, and the missing information is how each key area (room) is reached. An image of the circle of fifths is provided in Appendix 2.1 for teachers that choose to use the image as a method for learning keys and key relationships.

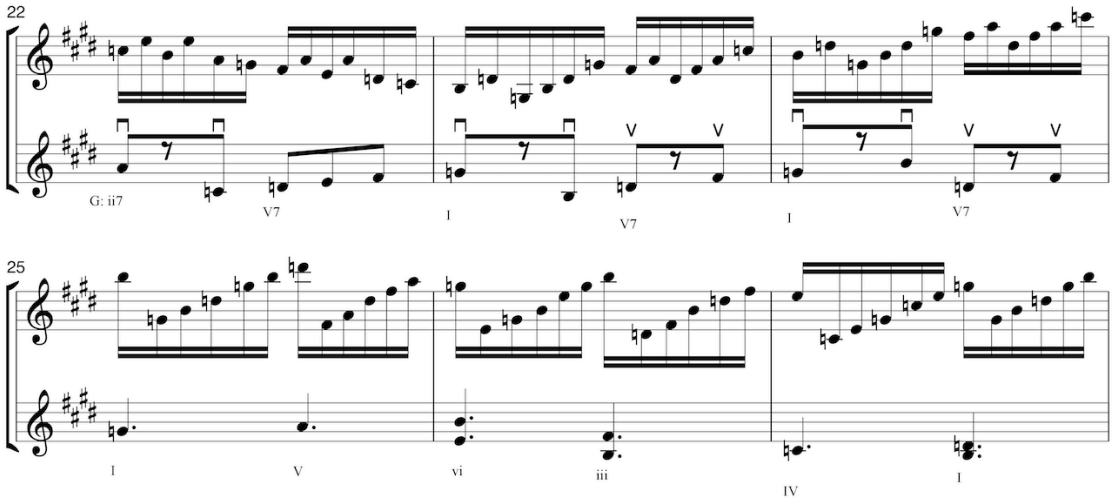
Another example of how the scanning process is valuable to students is demonstrated in Kreutzer, Étude No. 8.

Example 2.6: Kreutzer, Étude No. 8, mm. 1-3 (Musical accompaniment, P. Amirinazari)



This étude is in the key of E major; however, a large portion is in the key of G major. In cases where students scan and discover mm. 22-31 to be in G major, that specific modulation is played more in tune compared to when it is played without discussing the modulation. Playing in G major is easier than E major because it has fewer accidentals and utilizes all open strings of the violin. In the notated music, the section in G major can be distracting because of the additional accidentals needed, compared to the home key of E major.

Example 2.7: Kreutzer, Étude No.8, mm. 22-27 (Musical accompaniment, P. Amirinazari)



I have found that students are confused less by this section when they realize all the accidentals are there to form the familiar key of G major.

The information gathered during the scanning process helps the student to focus on what key changes, and ultimately, what harmony to expect in the particular piece of music. It quickly informs the student that after a piece begins, they play in keys other than that of the initial key signature, and the home key is a home base for the harmonic journey the piece will take. Incidentally, it will also improve sight-reading skills. Over time, scanning for accidentals will also provide a structural skeleton of a piece beyond possible key areas, such as a quick snapshot of the musical and technical pacing.

Key Preparation Lesson
(Key Prep)

1. Key Prep: Scale Degrees
2. Key Prep: Intervals

A common cause of intonation problems is when notes are tuned in relation to neighboring notes without a relationship to the tonic, which I describe as *note-to-note* tuning.

The opposite of *note-to-note* tuning is harmonic tuning. Harmonic tuning is the tuning of notes in accordance with certain harmonic principles, for example to a tonic.[19] *Note-to-note* tuning is a common mistake and misconception for students and can often lead to bad intonation. This exercise helps students develop the ability to understand and correctly tune intervals harmonically, in relation to the tonic, using the principles of just intonation. All intervals are taught using a major scale and will be tuned to the tonic.

Notes that are out of tune with one another create beating frequencies, which are vibrations of sound caused by sound waves being out of sync with one another. The following exercises refer to the "sweet spot" as the point at which a harmonic interval is perfectly in tune (signaled by the elimination of the beating frequencies). When a double stop (for example, a perfect fifth or major third) is in tune according to just tuning, the common overtones vibrate and swing together in unison, eliminating the out of tune beating frequencies (and signaling the sweet spot).[20]

"Tonality is the organized relationship of pitches around a tonic."[21]

Walter Piston explains that tonality is not merely a matter of using only the tones of a particular scale, it is more a process of establishing the relationships of these tones to the one that is the tonal center. Each scale degree has its part in the scheme of tonality, its tonal *function*.[22] The Key Prep lesson centers the ear to a key. It is the foundation for employing principal pedagogical tools in the project such as singing, slurred bowings, and ear-driven slow practice. It also serves as a simple model to harmonically center the ear that can be applied to more complex studies and more challenging exercises such as three-octave scales.

---

[19] Ross, 32.
[20] Jensen and Chung, 31.
[21] Walter Piston, *Harmony* (New York: Norton, 1987), 56.
[22] Ibid, 53.

During a conversation about intonation, an instructor proposed tuning the perfect intervals first, because of their "non-negotiable" quality. This was a life-changing step towards simplifying the tuning process during my practice sessions. Thinking about intonation by prioritizing certain intervals made the process of playing in tune less daunting and made me question how I understood intonation to begin with.

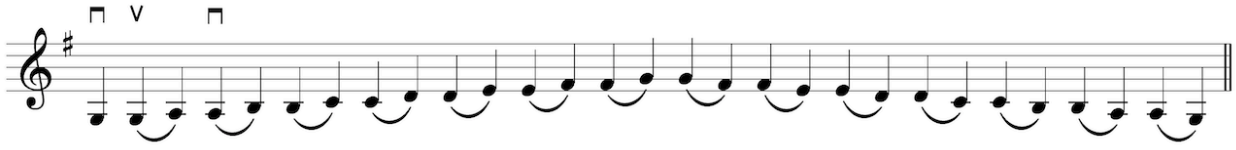
Perfect intervals are good examples of how an improperly-tuned harmonic interval creates out of tune beating frequencies. A helpful technique for demonstrating how to find the sweet spot is to play an interval clearly out of tune, and use a glissando to slide into the sweet spot. An example of this exercise (found in *Cello Mind*) has been transcribed for the violin and is available in Appendix 2.2.

1. Key Prep: Scale Degrees

Exercise Direction:

The teacher demonstrates how to play the one octave G major scale, ascending and descending, with slow, slurred bows, connecting one note to the next.

Example 2.8: One octave G major scale with hooked bows

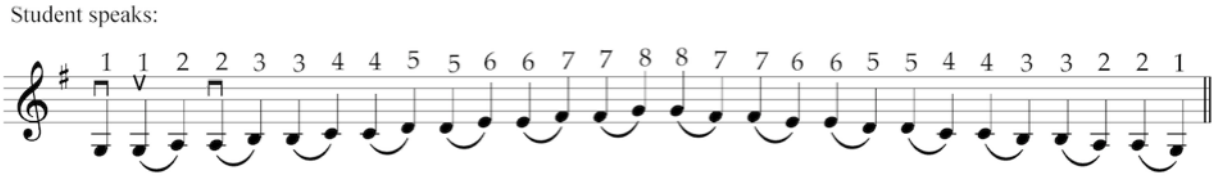


When playing the exercise keep the bow in contact with the string at all times, and play with a full, clear tone.

The first note of the scale is called the tonic and it is interchangeable with "home note/pitch," and "scale degree one." It is the main note of the key to which all notes feel like they gravitate. While playing the first step of the exercise, try to audiate the next note of the scale before playing it. When playing the next note, see if it matches what you heard in your head.

Every note of the scale corresponds to a scale degree. In the key of G major, the note after the tonic, "A," is scale degree two, "B" is scale degree three and so on. Next, play the melodic scale with the same bowing pattern as before, and this time speak the scale degree numbers as you play.

Example 2.9: Speaking scale degree numbers of the G major scale while playing



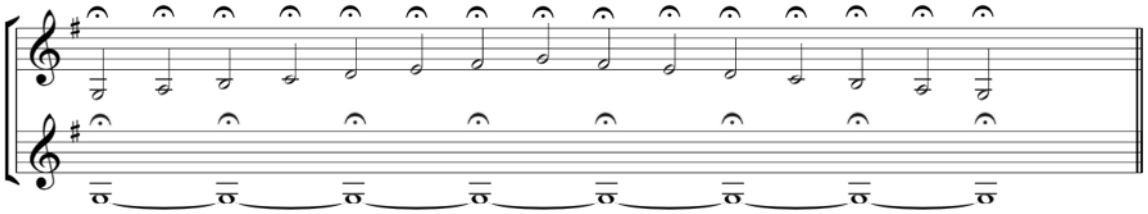
Next, sing the scale using the scale degree numbers. During this step, audiate before singing and moving to the next note.

Harmony is created with the simultaneous sounding of more than one note. An important step toward hearing and understanding harmony is understanding how the scale degrees sound and how they harmonically relate to the tonic.[23] *We will create harmony together using the scale just sang and played, along with a drone on the tonic. With more than one note sounding, it will be a harmonic version of the scale. Begin the exercise playing the drone and listening to the relationship between each pitch of the scale played along with the drone. The exercise will be vamped (repeated as many times as needed to be comfortable and familiar with the exercise), and then we will swap parts.*

Note for the teacher: It is important to make sure both violins are tuned well, and in tune with each other.

[23] Upcoming lessons will use Key Prep as a way to hear and understand intervals, build chords, and build progressions.

Example 2.10: G major scale with drone on tonic



Begin by playing the drone on the tonic; a big beautiful drone on open G. It is important that the pitch of the drone remains unchanging and constant.[24] *Play with full, smooth, connected bows while listening to how the pitches of the scale (played by the teacher) relate to the drone. Repeat until comfortable and then swap roles.*

The person playing the scale will be listening carefully to the drone, hearing the next note in the head before proceeding to play it, and aiming to play the note at its sweet spot, in tune with the drone. If the note sounds out of tune, small and quick adjustments will be made while playing. If the sweet spot can't quickly be found, the person playing the scale should stop, hear the note again, sing the note out loud, then play it again.

With roles switched, the student will play the scale while the teacher plays the tonic drone. The student should use as many bows as needed (making sure to use at least two bows per note) before moving to the next pitch of the scale to allow for enough time to listen to the relationships being created, as if there is a fermata on each note of the scale. Two versions of the exercise will be played.

~~~~~~~~~~~~~~

The following proposed methods are intended to address two common bad habits that are related to intonation adjustments in students.

[24] When playing in different keys with a drone on a note other than an open string, the teacher must remind the student to avoid adjusting the drone pitch to the melodic notes of the scale.
~~~~~~~~~~~~~~

There are students who use constant finger adjustment while playing. Frequent adjusting of fingers can indicate that a student is not actively listening. They may be anticipating the pitch will be out of tune. Asking this particular student to *stop* to hear, *sing,* and try again, could help them anticipate upcoming notes and avoid faulty intonation.

The opposite behavior may appear in students who have the habit of repeatedly stopping to fix intonation. These students should be encouraged to continue playing and adjust while they play. When a student frequently stops, it can be disruptive to their focus, musical flow, and performance practice. Specifically encouraging students to practice audiating during slow practice can help them break the habit of stopping for the purpose of fixing intonation. Working with students to learn how to tune by adjusting fingers "on the fly" should help students get comfortable with tuning without stopping. In a professional performance, a musician cannot stop to fix a mistake or correct an out-of-tune note. When an intonation adjustment is made during a performance, it must happen quickly, precisely, and unnoticed by the audience. In both cases, it is helpful to encourage students to hear (or sing) a pitch before playing it on the violin, and when played in tune to ask students to imagine the feeling of the sound (how it physically feels) as a way to remember how it feels to play in tune.

~~~~~~~~~~~~

For the first version of the exercise sing each note out loud before playing it on the violin. If the note sounds out of tune once played, and a quick and minor adjustment does not help, stop playing to audiate the pitch again. Sing it out loud, and play the adjusted note aiming closer to its sweet spot. Try to make minimal finger adjustments once played.

For the second version, play each note with continuous sound, changing bows as needed. Audiate the note in the head before playing it (while continuously playing the previous note on
~~~~~~~~~~~~

the violin) and adjust fingers while playing until each note feels and sounds like it is in tune with the drone, or close to it. Once the note feels as in-tune as possible move to the next note.[25]

On each repetition of the exercise, try to remember what adjustments were made to individual pitches the previous time, or which intervals were difficult to hear or tune. For each repetition of the exercise, try to adjust more quickly, and adjust based on what was learned from the previous time. Specifics on tuning each interval will be addressed in upcoming exercises.

This is a great exercise to try during personal practice. Determine the key of the music being practiced, using a tuning device play a tonic drone. Slowly and carefully find the sweet spot for each interval against the tonic drone using the techniques used to eliminate out of tune beating frequencies. This will greatly enhance intonation accuracy through more active listening. This exercise can also be applied when practicing three-octave scales.

Exercise Application:

Confusion can arise between scale degree numbers being spoken and the numerical counterparts associated with the left-hand fingers. Often, the same number has different meanings in the same lesson.[26] Students may encounter difficulties with this when scale degree numbers are spoken and simultaneously played on the violin. To help, the teacher can propose simplified exercises such as asking the student to play the scale while the teacher speaks the scale degrees and vice versa.

Students often confuse the words tonic and root. In a key there is only one tonic, but every scale degree can serve as the root of a chord. In the upcoming Triadic Harmonization of the major scale exercise in Chapter Three, students will learn how each scale degree also serves

[25] It is wise for the teacher to ask the student to share when they are having trouble hearing whether or not it is in tune and would like to move on. This way there is no confusion between an out of tune interval and a note that a student is struggling to hear.

[26] For example, in the key of G major the *second* finger plays the B and F-sharp of the scale, which simultaneously corresponds to scale degree *three* and *seven*.

as the root of a triad. Mindfully referring to "the tonic" where appropriate during the private lesson, rather than using the name of the pitch, brings the student's attention to the tonic's function within a piece. This will bring greater awareness to the tonic's critical role in harmonic listening and just intonation, and will begin to establish a basis for using terminology learned in repertoire.

Good intonation is one of the benefits of a strong harmonic understanding. The process of achieving this long-term goal involves the student's physical coordination. The two methods I have proposed for students to practice when tuning in the Key Prep exercise are intended to teach this skill. Encouraging the audiation of notes prior to execution and encouraging the continuation of sound while tuning should help students in their performance efforts.

2a. Key Prep: Perfect Intervals

The names of the resulting intervals from the Key Prep exercise will be explained, beginning with the perfect intervals. The perfect fifth is a very familiar sound to violinists because the four strings on the violin are tuned in perfect fifths. When in tune, its pure, resonating quality makes it easy to identify. This makes it the best place to begin when learning about harmonic intonation.[27]

Exercise Direction:

An interval is the distance between two pitches. The distance can be measured by counting the number of whole- and half-steps between the two notes. Intervals can exist independent of a key, but will initially be learned in relation to the tonic. Try to form an understanding of how each interval is formed through the sound of the feeling (how it sounds when played), and the feeling of the sound (how it physically feels on the violin).

[27] There is very little room for variance when tuning perfect intervals, unlike their major and minor interval counterparts.

In the previous exercise, harmonic intervals were created against the tonic drone. This exercise will inspect those intervals in more detail. The distance between the two notes is described as being the interval.

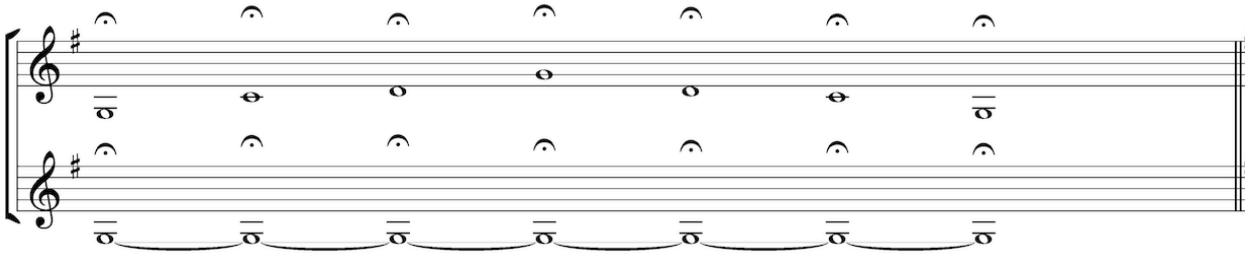
The perfect intervals are the perfect fourth, perfect fifth, octave and unison. These notes above the tonic, are scale degree four, five, eight and one. For the key of G major, what are the names of the scale degrees that form a perfect interval above the tonic?

The perfect fourth is C, the perfect fifth is D, and the octave and unison are G

The perfect fourth, measured from the tonic is made up of two sequential whole-steps and one half-step. The perfect fifth measured from the tonic is made up of two sequential whole-steps, followed by one half-step and an additional whole-step. The octave is made up of two whole-steps, a half-step, followed by three whole-steps and a half-step. Recognizing the measurement of whole-and-half steps can help form intervals from any note.

Much like the previous exercise, these notes will be carefully played above the tonic drone, until the interval's sweet spot is found by stopping to hear and sing the note before playing it. Begin the exercise by playing the tonic drone while the teacher plays the intervals. In order to experience both parts, after vamping, roles will be switched.

Example 2.11: Key Prep for perfect intervals in G major



Play the tonic drone with a full and consistent sound and listen to the relationship between the two notes forming a perfect fourth. If the sweet spot isn't easily located, the teacher

will stop, audiate the pitch, sing, then play it again. Make sure to listen for how the interval sounds at its sweet spot.

With roles reversed, the student is responsible for playing the perfect harmonic intervals. Before playing, make sure to listen to the drone, audiate, then sing the perfect fourth before playing it on the violin. Before moving to the perfect fifth, again pause, audiate, sing the G, and then play it. Don't feel rushed to move to the next interval.

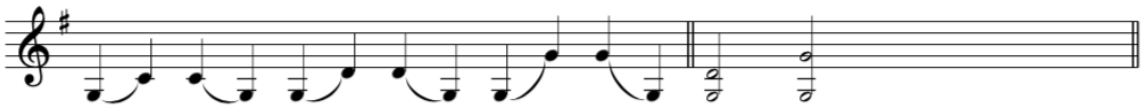
During additional repetitions, try to shorten the time it takes to find the sweet spot. The goal is to eventually be able to do these exercises without having to stop playing between each note, and without a lot of finger adjustments to find the correct intonation.

This exercise is very handy for future intonation practice. These intervals can easily be tuned in a practice session with scales or repertoire against a tonic drone. The remaining notes of the scale are addressed in the next lesson and will be addressed after the student has had time to explore the perfect intervals in private practice. Beginning with the perfect intervals helps prepare for tuning the remaining intervals. Comfort in hearing and eliminating beating frequencies with the perfect intervals will ensure more comfort in learning how to tune the remaining intervals.

Exercise Application:

During the exercise, it is helpful to encourage students to take the necessary time, and potentially using an additional bow-stroke, to hear and feel the interval once it is in tune. Depending on the key, the amount of time there is, and the applicability to other lessons, teacher and student can explore the intervals further by having the student play them in the two forms typically found in repertoire: melodic intervals (a single note following another) and/or harmonic intervals (as double-stops) as shown below.

Example 2.12: Melodic and harmonic perfect intervals in G major (please note: the melodic perfect fourth in this example cannot be played harmonically)



This additional step can solidify a more vivid understanding of the terminology of linear and vertical intervals. This step also provides students with the chance to explore playing the intervals on the violin on their own as double-stops, without the tonic drone. Depending on the key and interval, some intervals are not possible as double-stops, or require shifting or creative fingerings in order to play them melodically or harmonically. For example, in Example 2.12 the first melodic interval, the perfect fourth from open G –string to C, cannot be played as a double stop. Teachers must be aware of these elements to avoid confusion if shifting and unusual fingerings are necessary.

This additional step is also a chance for students to explore how each interval feels in the left hand as a tool to more easily identify intervals based on their physical sensation. Discussing how the left hand feels when an interval is in tune will help students build a stronger memory for the intervals. Pattern identification is an immediate and accessible form of association for musicians, and this step can help a student feel more connected to the varying physical differences that exist between intervals.[28] The focused, experiential knowledge of how these intervals feel and sound, when in tune, empowers students to approach intonation more harmonically-minded in their private practice.

Often, students will need more time than they expect to find the sweet spot and taking the time with the guidance of a teacher helps students experience the importance of slow work. The

[28] Depending on the notes, a melodic perfect fourth on the violin can have at least three different shapes in the left hand.

common music theory class approach of learning intervals from smallest to largest does not follow a violinist's practical experience. Walter Piston explains how "Tonic and dominant are the principal harmonic elements that define tonality."[29] The perfect fifth plays a central role in triads, and initially hearing it against the tonic helps instill its essential relationship to the dominant chord. These exercises help students develop their understanding of the interval and build listening skills which will support them in successfully learning future exercises in triads and arpeggios.

3b: Key Prep: Major Intervals

In the major scale, all non-perfect intervals above the tonic are major, which provides a unique opportunity to isolate, hear, and feel major intervals. Much like Key Prep for perfect intervals, this exercise also follows a non-traditional order of learning intervals. The lesson begins with the more consonant sounds of the major third and major sixth and ends with the more dissonant sounding major second and major seventh.

The decision to teach these particular pairings is two-fold. The third and sixth are similarly consonant-sounding and the second and seventh are similarly dissonant-sounding. Since both pairs are major intervals, this will create for the student a strong foundation for understanding major intervals. The complement of a major interval is a minor interval and vice versa. Once a clear understanding is formed for the major intervals of the major scale, minor intervals can be taught by addressing complementary intervals. For example a major interval could be taught alongside its complementary minor interval (the complement of a major third is a minor sixth, and the complement of a major second is a minor seventh).

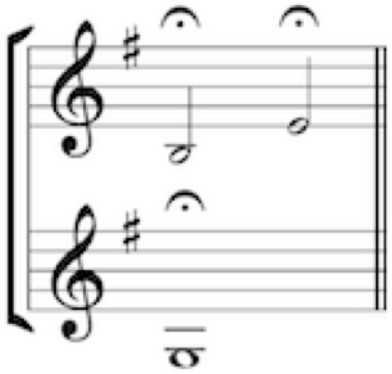
[29] Piston, 65.

Depending on time and private lesson objectives, Key Prep for major intervals can be split into two separate lessons; there is no requirement to address both sets of intervals in one lesson.

Exercise Direction:

The student should identify the pitches for scale degrees three and six in the key of G major. Scale degree three is B and scale degree six is E. Similar to previous lessons, the student will begin on the tonic drone, taking as much time as needed to find the sweet spot for each interval. Scale degrees three and six above the tonic in a major scale will always be a major interval. The intervals above the tonic in a minor scale are different.

Example 2.13: Scale degree three and scale degree six in G major



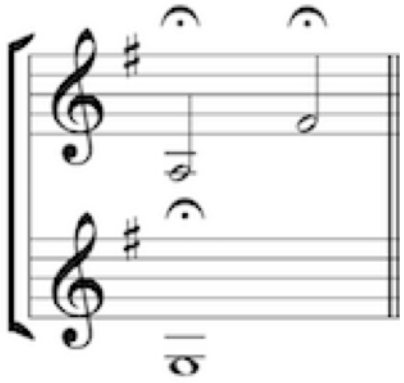
A major third is made up of two whole-steps above the tonic, and a major sixth, measured from the tonic, is comprised of two whole-steps, a half-step, and two additional whole-steps. The major thirds and sixths can be tuned using the same methods proposed for perfect intervals; finding the sweet spot for each interval where the common overtones vibrate and swing together in unison, eliminating the out of tune beating frequencies. The teacher can use this exercise to mention that the quality of each interval is dependent on the measured distance between the two pitches *as well as* how they sound. The teacher should encourage the student to commit to

memory the measured distance between each interval. To help with ear-training, students should listen to each interval's unique sound and explore what words, images, and feelings go well with it.

Major Second and Major Seventh:

The teacher can follow the same process for the remaining scale degrees in G major forming the major second and seventh, shown below. The major second is measured as a whole-step and the major seventh, measured from the tonic, is comprised of two whole-steps, a half-step, and three additional whole-steps. These particular intervals will emotionally and physically feel different from the other intervals because they are considered dissonant harmonic intervals. Ask the students to describe, in their own words, what the major second and major seventh intervals sound like and how they sound different from other major intervals played previously. After this exercise, the student has experienced all the intervals above the tonic of the G major scale.

Example 2.14: Scale degree two and scale degree seven in G major



Since it is a bit more difficult to find the sweet spot for the major second and seventh, the teacher can encourage the student to listen for the point at which each note resonates the most. The natural resonance of the violin is often an indicator of activated natural harmonics and

overtones. If a student is having difficulty playing in tune or a student's ears begin to get tired, take breaks to avoid frustration. These lessons are a good opportunity to re-articulate specific expectations or approaches students hear from their teacher regarding how to practice intonation (tone, amount of time, techniques, etc.).

Singing and Playing

Simple melodies with harmonization

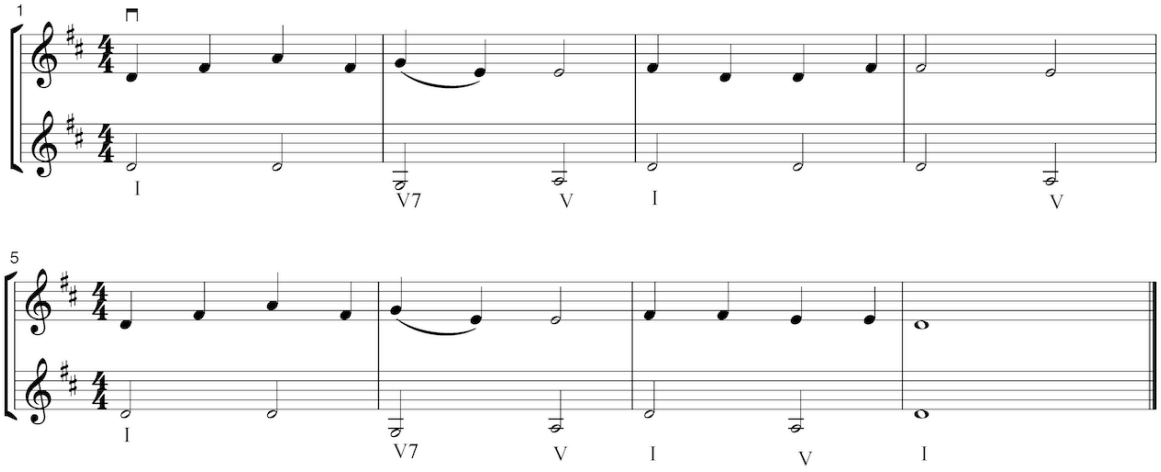
This exercise is an opportunity to help students use the voice, confirm audiation, and build an intuitive understanding of simple harmony. Singing and playing at the same time mimics the feeling of audiation while playing the violin by encouraging students to simultaneously hear multiple voices. Book One of the Doflein Method books (a great resource for teachers interested in incorporating duets into the private lesson), begins with simple songs for beginners written as a duet. These songs incorporate simple intervals and melodies and are well-suited for use in this project as a supplemental resource for singing and playing.

The skills built in this exercise can be incorporated into hearing implied harmony in more complex music. For example, when working on an étude, students can be asked to sing or hum the simple accompaniment while playing the étude to more actively understand the harmony. This has helped students identify intervals, play better in tune, and listen more attentively.

The following musical example is in the key of D. I have found the pitch range of this key to be the most inclusive of the vocal range of my students' age group. Additional songs are provided in Appendix 2.3.

Exercise Direction:

Example 2.15: *The Cobbler*, English Song[30]



The student must first practice each line of the song beginning with the melody, using smooth and connected legato bows. The teacher should remind the student to anticipate the next note of the song by hearing it before playing it. Once both lines have been practiced, the student should proceed through the same process *singing* each line, beginning with the melody. Next, the teacher and student should play the song as a duet on the violin with the student beginning with the melody. Before switching lines, each line should be vamped until comfortable and in tune.

As the student becomes comfortable with how the two lines sound together, the teacher should ask the student to identify the harmonic intervals being formed between the melody and accompaniment. This will help the student play more in tune and utilize skills built in previous exercises. After the duet has been played on the violin, the student and teacher should proceed through the same process practicing *singing* the duet.

---

[30] Erich and Elma Doflein, *The Beginning,* Doflein Mehtod: The Violinist's Progress, Vol. I (London: Schott, 1957), 11.

If the student is not adjusting for intonation of the perfect intervals found throughout the song, it can be helpful to run through Key Prep for perfect intervals in the key of D major to isolate the sounds and feelings present in the song. For example:

Example 2.16: Key Prep for perfect intervals in D major

Once the student is ready to sing and play. They should begin by singing the melody and playing the harmony. If it is too difficult at first, the student can sing the melody and pluck the harmony. The student should maintain a continuous sound on the violin while they audiate the vocal line. It is helpful for the teacher to encourage the student to keep playing the note on the violin even if they need to stop singing in order to audiate. This way, the student is able to audiate in relation to the violin part.

Because this exercise puts students outside of their comfort zone, it is helpful for the teacher to support the student by playing or singing along. For example, before the student attempts to sing and play (plucked or bowed) the teacher can play or sing the same line the student is working on, or play or sing the supporting line.

An exercise that incorporates acquired knowledge from previous lessons is to have students discuss the specific intervals being formed as a way to confirm their understanding of intervals, what they sound like, and what they feel like. This chapter addresses listening harmonically, tuning using the principles of just intonation, and the application of the former and the latter through singing and playing. These skills will be expanded upon in upcoming chapters.

Chapter Three:
Advanced Skill-Building: Triadic Harmonization of the Scale

Chapter Three builds on the listening skills and the knowledge of intervals developed in Chapter Two and is best suited for older and more experienced violinists. For example, students who have completed concertos such as the Haydn Concerto in G major or the Accolay Concerto in A minor as well as those who have begun studying more advanced concertos such as the Bruch Concerto in G minor or Mendelssohn Concerto in E minor. In addition, the exercises in this chapter are designed for students with discipline and focus who are experienced in playing sequential double-stops. The exercises are also longer than those in the previous chapters in order to cover the material thoroughly, such as listening to harmonies containing three notes, learning additional terminology, and allowing more time for tuning.

Triadic Harmonization of the Scale contains four exercises: Fifths and Thirds, The Tritone, Arpeggios, and Ear-Training and Names of Chords. They all use the major scale and the triads built on each note of the scale to hear and play three-note harmonies. The exercises introduce new terminology, more advanced ear-training, and the relationship between arpeggios and chords. Each exercise is presented with step-by-step explanations, musical examples, descriptions of the process, and commentary on the purpose and desired outcome of the exercise. To tackle this chapter, students must be comfortable bowing on two strings simultaneously and familiar with playing double-stops such as sixths, octaves, and thirds. Students need to be secure in the lessons from Chapter Two, such as knowing the names of intervals, scale degrees, and using harmony to work on intonation.

All exercises utilize the same core teaching methods from Chapter Two, including duet playing by teacher and student, speaking while playing, singing, slow practicing without vibrato, and repetition. Time to work on the exercises in this chapter should be scheduled into lesson

plans in advance because depending on the exercise, they can take anywhere from fifteen to thirty minutes. Carving out time in the private lesson to work through these exercises will provide a foundation needed to understand more advanced harmony, and in different settings, e.g., a college music theory class.

Triadic Harmonization of the Scale

1. Triads: Fifths and Thirds
2. The Tritone
3. Arpeggios
4. Ear-Training and Names of Chords

In the Fifths and Thirds exercise the student and teacher build triads on each note of the major scale with one person playing the root and fifth as double-stop perfect fifths, and the other person playing the third of the triad. The aim is to hear the triads within a diatonic scale through the sound of the violin. In order for students to maintain their focus on *listening* to harmonies during the Fifths and Thirds exercise, they must be able to play consecutive double-stopped perfect fifths on the violin with relative ease. An optional exercise, the Interval Building Exercise for the perfect fifth, is provided to help demonstrate the level of proficiency needed, and is also useful for students who need practice before proceeding through the Fifths and Thirds exercise.

Playing consecutive perfect fifths on the violin, melodically or harmonically, is not a skill commonly addressed in pedagogical exercises; students encounter perfect fifths most frequently in the solo contrapuntal music such as J. S. Bach's solo sonatas and partitas. While there is a scarcity of études and exercises that specifically address how to play the consecutive perfect fifths, playing thirds, sixths and octaves are discussed in many. For the purpose of learning harmony, I have found that even an unrefined attempt at playing double-stopped fifths during the Fifths and Thirds exercise can help students understand how triads are formed and how they sound. During the first few lessons using the Fifths and Thirds exercises, I recommend that

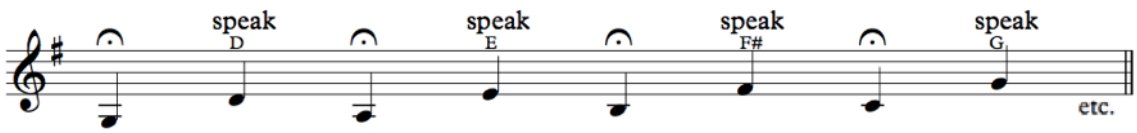
teachers focus less on intonation in order to avoid the exercises turning into a "how to *tune* fifths" exercise. After students have had more practice of playing the perfect fifths, teachers may address intonation by explaining how to position the fingers to help eliminate the beating frequencies, which signal intonation problems.

Since this Interval Building Exercise only addresses two-note intervals, it is an extension of the lessons in Chapter Two. The teacher, who knows the student best, can determine whether or not it is necessary to complete this exercise before going through Chapter Three exercises. Because the Fifths and Thirds exercise introduces a third note to the learning process and requires more advanced listening skills, I would recommend the Interval Building and the Fifths and Thirds exercises be addressed in separate lessons.

Interval Building Exercise:

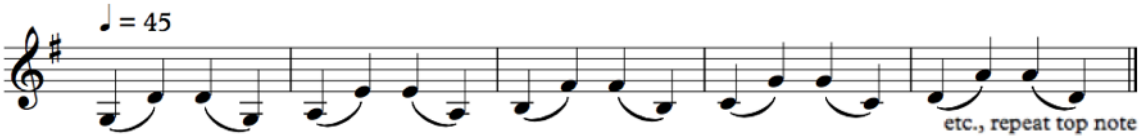
A perfect fifth, using the notes of the major scale, can be formed on every note of a major scale, except for on scale degree seven. In the Interval Building Exercise students form the perfect fifth interval above the first six pitches of the major scale and a diminished fifth above scale degree seven. The teacher asks the student to play each pitch of the scale and say the name of the note a perfect fifth above the note being played on the violin. If students are confused about how to determine a perfect fifth above a given note, the teacher can suggest counting five diatonic steps above the note (and make sure to include the note being played as the first note to count). This exercise will be in the key of G major.

Example 3.1: Step one of the Interval Building Exercise



The student should practice the exercise for one octave, ascending and descending on the scale, always speaking the letter name of the fifth above the note being played on the violin. Once the student is confident of the note names forming the perfect fifths for all the notes of the scale, they can play the intervals melodically on the violin using slurred bows as shown in Example 3.2.

Example 3.2: Step two of the Interval Building Exercise



The double-stopped perfect fifth on the violin is played with the same finger, across two strings. On the scale degree seven, the student will encounter a diminished fifth (a F-sharp up to a C-natural), which will require using two fingers to play the interval. Tuning the perfect fifth is physically more difficult than that of other types of double-stops because the same finger is responsible for the intonation of the two pitches. If the musician is not careful, an adjustment of the finger can change the pitch of both notes of the double-stop. Physically, each person's hand is different and every teacher has their own personal approach to playing the perfect fifths on the violin.

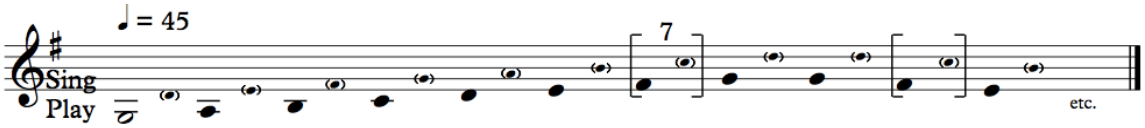
After melodically playing through the intervals, the teacher can provide suggestions on how to make playing fifths on the violin more comfortable. Suggestions include playing the interval with a flat finger, utilizing as much of the left hand finger-pad as possible. It is helpful to visualize an imaginary third string (placed between the two strings being played on the violin) that the finger aims for. This method physically produces a more balanced left hand position that can be replicated more easily. For students that continue to have trouble tuning the perfect fifth, a slight adjustment of the base-knuckles of the left hand moving closer (more parallel) to the level

of the fingerboard of the violin will create a more perpendicular finger angle to the strings (shown in Example 3.3), often helping with intonation.

Example 3.3: Base-knuckles of the left hand moving closer to the level of the fingerboard. (The second photo demonstrates knuckles closer to the fingerboard, forming a more perpendicular finger angle.)

After the student has played the intervals melodically, they should play the lower note of the interval on the violin and simultaneously sing the fifth above.

Example 3.4: Step three of the Interval Building Exercise



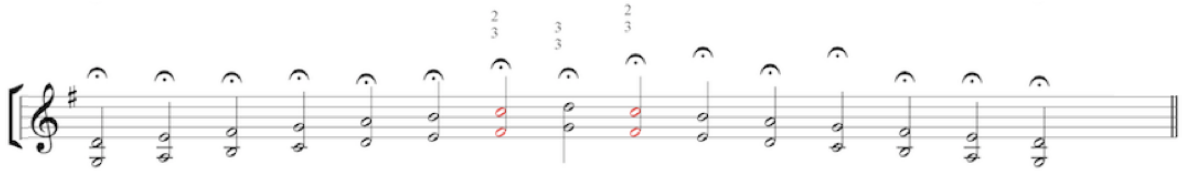
Once the student has experienced singing and playing the interval melodically, they can proceed to the Fifths and Thirds exercise where the first step is to play the perfect fifths as double-stops. Another option is for the teacher to add the additional step of playing the interval as double-stops to the Interval Building Exercise.[30]

[30] Depending on the interval being learned, adding this step to the Interval Building Exercise may not always be possible to play in first position and may require shifting. For example, when playing the thirds, both notes of the

1. Triads: Fifths and Thirds Exercise

Step one of the Interval Building Exercise*, speaking* the names of the notes that form the fifth, is a helpful warm-up for the student before playing double-stops. The teacher can remind the student that not *all* the double-stops may sound and feel the same when forming the perfect fifths using only the diatonic notes in the key of G major.[31] This may alert the student to what they will soon discover – a diminished fifth interval that is built on the scale degree seven as shown in example 3.5. A diminished interval is a minor interval or a perfect interval made a half-step smaller.[32] For example, a F-sharp up to a C-sharp forms a perfect fifth, and lowering the upper note to a C-natural makes the interval a half-step smaller resulting in a diminished fifth interval. Playing a diminished fifth double-stop on the violin will require the use of two fingers compared to one finger for the perfect fifth double-stop. The student should play through the whole one-octave scale with double-stops as indicated below (red double-stops indicate where the diminished fifths will be):

Example 3.5: Student plays perfect fifths on each note of the scale in G major (diminished fifth indicated in red)



If the student plays a C-sharp above the F-sharp on scale degree seven by mistake creating a perfect fifth, have them stop and say the name of the note that belongs in the key of G major that is a fifth above the F-sharp. When the student realizes that the upper note should be a

---

thirds will often fall on the same string unless a shift to another position is involved. Therefore, in order to play all the thirds as double-stops playing on two strings, shifting to other positions is necessary.

[31] I have found that once the fingering pattern of double-stopped fifths is recognized, students sometimes go on "auto-pilot" and continue the pattern without being conscious of the diatonic pitches of the key and miss the diminished fifth by playing it as a perfect fifth-- F# to C#.

[32] Piston, 8.

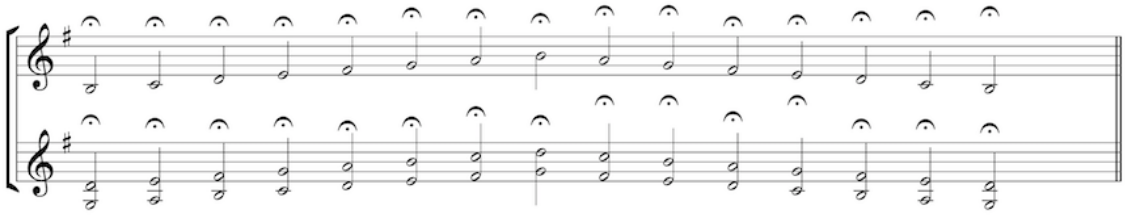
C-natural, the teacher should remind the student of the fingering and the need to use two fingers for the diminished fifth. The student should repeat the diminished fifth and listen to how it sounds and feels different from the perfect fifths. To hear the diminished fifth in context and practice the fingering, the student should repeat the intervals preceding and following it. The student should be asked to strongly imprint the sound and feeling of the diminished fifth interval into their memory; later in the project, it, along with its inversion, will be explained as a tritone.[33]

When playing through the consecutive double-stops (perfect fifths), the student should use at least two bows per double-stop to allow enough time to hear and tune the intervals. Students should be encouraged to create continuous sound and avoid stopping the bow or losing contact with the strings between double-stops. They should hear the next pitches in their head before playing, in the same way that it was encouraged in the Key Prep exercise in Chapter Two.

Once the student is able to play sequential double-stopped fifths, the teacher will complete the triad by playing the third above the root. The teacher should explain that when they play together, the student will be hearing three notes simultaneously sounding together, a three-note harmony, also known as a three-note chord (compared to the two-note harmony in the form of intervals from the previous chapter.) "The combination of two or more harmonic intervals makes a *chord*." [34] The three-note chord being created is also known as a triad. A triad is a three-note chord in which the notes can be arranged as a stack of thirds, one immediately above the other.[35]

[33] For the purpose of this project, the tritone is a quintessential demonstration of the phrase "tension and release." The clashing quality of the tritone is clearly identifiable and has a strong pull toward resolving.
[34] Piston, 13.
[35] Ralph Turek. *Theory for Today's Musician.* (New York: McGraw-Hill, 2007)

Example 3.6: Student plays double-stopped fifths on each note of the scale and the teacher completes the triad by simultaneously playing the third



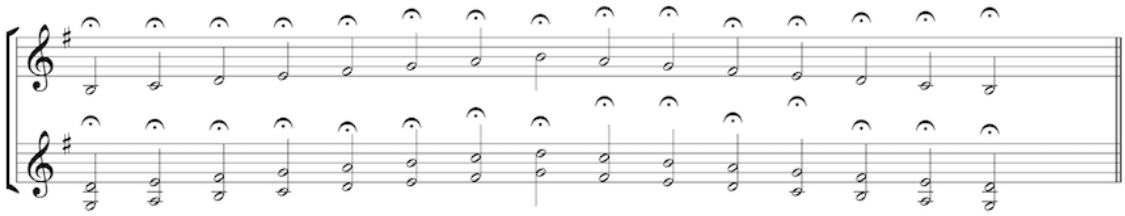
The teacher should explain that each triad will have its own name and quality, learned in more detail in upcoming exercises. As they play through the exercise, the student should listen for how the triads sound major, minor, or diminished. The student can play the double-stop fifths of the Fifths and Thirds exercise on their own to listen to how the repeated perfect fifths lack a major or minor identity and how they all have a similar sound (except for the diminished fifth on scale degree seven). Only when the third is added does the chord form a new, and distinguishable identity of major, minor or diminished. The identity of the chords, largely based on the third, will be more carefully explained in the upcoming Arpeggios and Ear-Training exercises.

When the student has had a chance to hear and feel the three notes sounding together, the teacher can further explain that these are *root-position* triads. "A root-position triad is any arrangement of the tones of a chord in which the root appears as the lowest pitch."[36] This description establishes the basic language around triadic chords: root, third, and fifth. It is imperative that the student understands that the fifth and third of the triad are the intervals measured from the root. The teacher can describe a root-position triad as the interval of a third sandwiched between the root and the fifth. After the explanation of a triad, the exercise should be repeated to allow the student to connect the information to the sound of the triads.

[36] Turek, 787.

Repeat the step with the student playing the fifths and the teacher playing the third. The teacher can draw attention to the triad built on scale degree seven to illuminate the fact that it does not sound like the others because of the diminished fifth the student learned about earlier. There is no pressure to define the triad qualities without more information; that will happen in a later exercise.

Example 3.7: Teacher plays double-stopped fifths on each note of the scale and the student completes the triad by simultaneously playing the third



Before playing, the student says the name of the pitch that is the third of each triad while the teacher plays the double-stopped fifths. Another variation would be for the student to *sing* the third after naming the third. When the student is playing the third, encourage them to identify if they are playing a major or minor third above the root. The teacher can explain how the third of the triad defines the major or minor quality of the chord, (except when there are two stacked minor thirds, creating a minor third and diminished fifth above the root, forming a diminished triad).

The tuning of a triad can be explored once the student has the opportunity to play the third. There are additional challenges to tuning triads, compared to the doubles stops of the previous chapter, because of the added third note. This is a good opportunity to reiterate two ways students will be expected to tune in ensembles. In string quartet playing, which is similar in nature to the student and teacher playing the intervals as a duet on the violin, most players tune using just intonation. String players can finely tune each pitch of a chord to locate the frequency

ratios for a chord to be perfectly in tune, which also means the elimination of beating frequencies. However, when playing with a piano, violinists will need to learn how to tune to a tempered tuning system where all the half-step ratios are the same. An equal tempered major third will sound 14 cents *sharp* to its just counterpart. An equal tempered minor third will sound nine cents *flat* to its just counterpart and an equal tempered perfect fifth sounds two cents *flat* to its just counterpart.[37] Playing with a piano will require minute adjustments to pitches in order to accommodate the piano's tempered tuning. When string players work on playing with just intonation, playing with a piano using just intonation could sound and feel slightly out of tune. The listening skills developed in this project can be used when playing with a piano. Astute listening skills should guide a player to make the adjustments needed in order to play in tune with a piano.

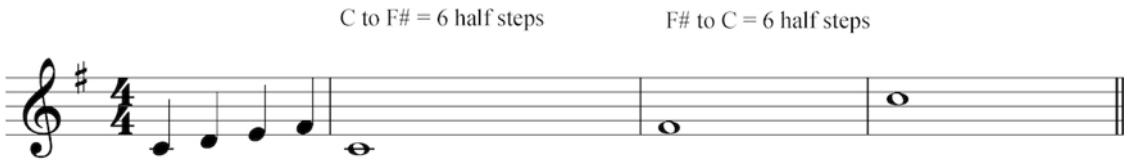
2. The Tritone

This exercise introduces the tritone that exists between scale degrees four and seven in the diatonic major scale. The teacher will guide the student through hearing and feeling how the tritone and its inversion, the diminished fifth, are "tonic-defining" due to how they resolve to tonic harmony.

A tritone is a musical interval comprising three whole-steps. ("Tri" represents the number three and "tone" represents step; three whole-steps form a tritone.) In an octave, a tritone above the lower note of the octave splits the octave exactly in half as shown in Example 3.8. The tritone forms six half-steps from each note of the octave.

[37] Jensen and Chung, 25.

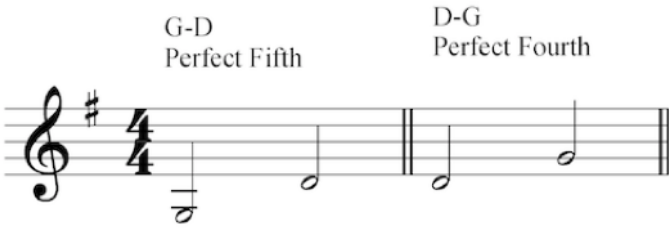
Example 3.8: Demonstration of the tritone splitting the octave in half



"The interval formed by the leading tone and the fourth degree below (augmented fourth) or the fourth degree above (diminished fifth) is the tritone."[38] In this project, the diminished fifth will be referred to as the inverted tritone. "Inversion of an interval involves octave transposition of either pitch so that the higher pitch becomes the lower, and vice versa."[39]

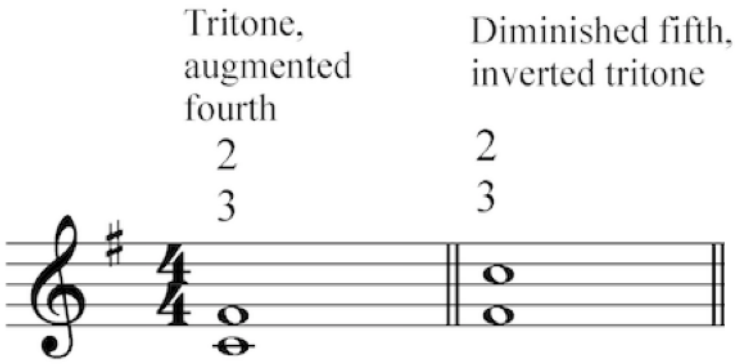
To demonstrate an inversion, the student should play an interval, for example a perfect fifth, G to D. To invert the perfect fifth, the student should make the top note of the interval (D) to be the bass note, and to make the bottom note of the interval (G) to be the top note of the new interval – a perfect fourth, D to G.

Example 3.9: The perfect fifth and its inversion, the perfect fourth



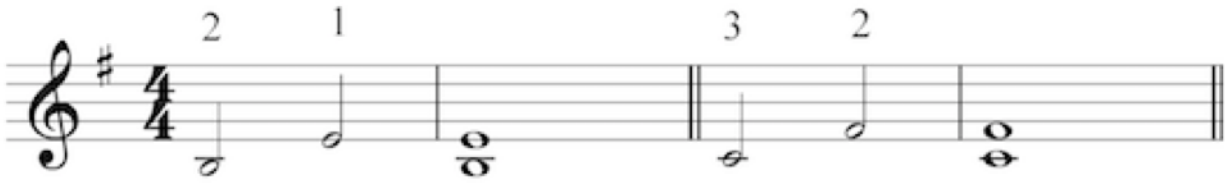
[38] Piston, 34.
[39] Turek, 25.

Example 3.10: The tritone and its inversion, the diminished fifth



The first double-stop in example 3.10 is an *augmented* fourth interval, also known as a tritone. A major or perfect interval made a half-step larger is an augmented interval. C to F-natural is a perfect fourth and in the key of G major the F-sharp makes the perfect fourth (C-F) a half-step larger to form an augmented fourth (C-F#). To hear and feel how a *perfect* fourth sounds and feels compared to the augmented fourth, the teacher can propose building a perfect fourth in the key of G major from a member of the scale by forming a double stop across two strings, such as scale degree three to scale degree six in the key of G major, which is B on the G-string to E on the D-string.

Example 3.11: The perfect fourth and augmented fourth

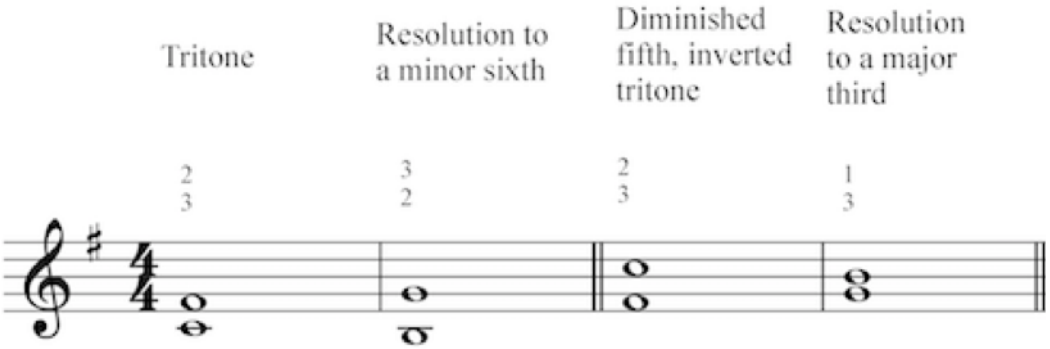


The physical sensations and forms in the left hand change distinctly between the perfect fourth and the tritone. The perfect fourth feels like a downward whole-step across the string; the tritone feels like a downward half-step between the two fingers, resulting in them being placed closer to each other. I refer to the close feeling between the fingers as “sandwich fingers.” The

fingers feel close, but since they are on adjacent strings (fingers across two strings), there is a feeling of "space" between the fingers. The fingers represent the bread of the sandwich and the space across the strings represents the contents of the sandwich. Comparing the perfect fourth to the tritone aurally reveals that the augmented fourth is a half-step larger, resulting in its augmented quality. The expressive sound (the sound of the feeling) of the perfect fourth is open, resonant, and pure. The tritone, on the other hand, feels narrow, tense and unstable, and can be described as an uncomfortable rubbing that needs to be relieved.

The tritone's distinctly unstable quality makes it easy to identify, in both double-stop and melodic form. Its unsettled character serves as a starting point for learning the concept of tension to resolution and harmonic function. This exercise should provide students with a physical and aural connection to the phrase "tension and resolution." In this exercise the student will learn how the tritone resolves its tension by exploring how each individual pitch of the interval behaves in good voice-leading. The correct resolution of both intervals is:

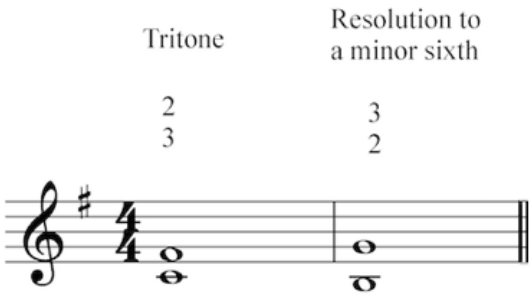
Example 3.12: The tritone and its resolution; the diminished fifth and its resolution



A resolution will sound and feel stable and affirming. The resolution will occur when each pitch of the interval resolves either up or down by stepwise motion, usually the smallest increment of step-wise motion. The correct resolution of scale degree seven will be moving up a half-step to the tonic. Scale degree four will resolve downward a half-step to scale degree three.

In order for the student to hear how the tritone resolves, the teacher should demonstrate playing the tritone and its correct resolution for the student.

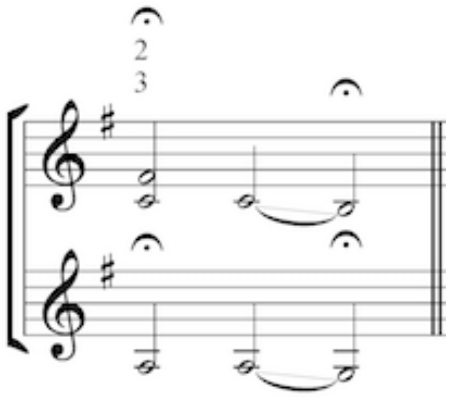
Example 3.13: The tritone and its resolution to a minor sixth



After the student has had the chance to hear the tritone's resolution, they can try the exercise. First, the student should begin by playing the tritone with the suggested fingering as a double-stop, then practice resolving each note of the tritone by stepwise motion using slurred bowings while the teacher plays supporting harmonies. The supporting harmonies will consist of dominant harmony for the tritone and tonic harmony for its resolution.[40] The student begins by resolving scale degree four down by half-step to scale degree three.

[40]In this configuration, the supporting dominant harmony for the tritone is missing the root of the chord. It is interesting to note that the supporting harmony could also represent a vii-diminished chord.

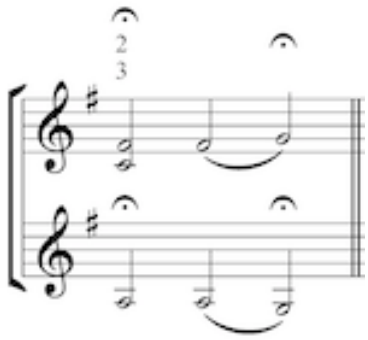
Example 3.14: Resolution of scale degree four of the tritone to scale degree three of the tonic harmony



The teacher can explain that the strongest resolution of the voices of the tritone is through the smallest interval possible, which the student demonstrated by playing scale degree four down a half-step to scale degree three. This is the correct way to resolve scale degree four of the tritone. To hear the difference between the correct and incorrect resolutions, the student could move scale degree four up a whole-step to the scale degree five, a D-natural. The teacher and student can discuss the differences in the feeling of the sound of both versions. This should articulate how noticeably different and more compelling the resolution a half-step down to scale degree three sounds and feels.

In the same manner, the teacher will ask the student to practice resolving scale degree seven up a half-step to the tonic:

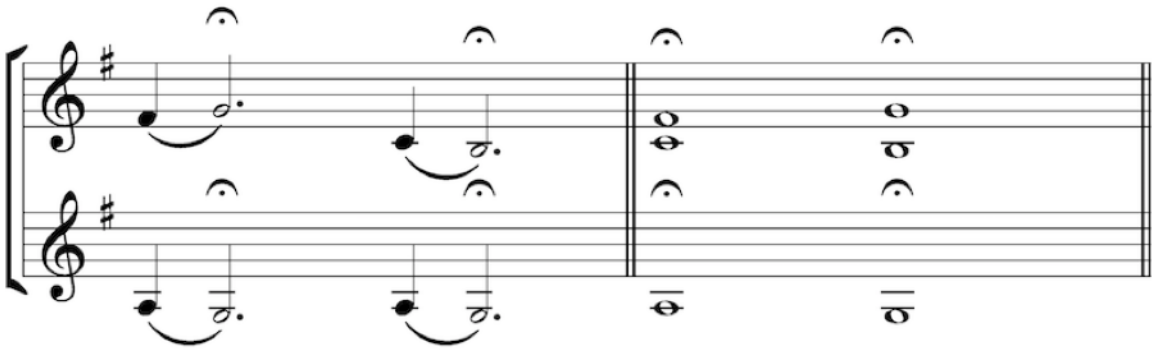
Example 3.15: Resolution of scale degree seven to the tonic



The teacher can explain that this is the correct and most secure direction the scale degree seven resolves in diatonic music, up a half-step. To compare the sound and feeling to the incorrect direction, the student can play scale degree seven down a whole-step to scale degree six (F# to E in G major). The teacher and student can discuss how even though scale degree six may not sound overtly *incorrect* when resolved to E, the resolution to the tonic (G) sounds far more secure, stable, and complete.

Once the student has learned how each note of the tritone resolves, the student can demonstrate how the tritone resolves much like the teacher's initial demonstration:

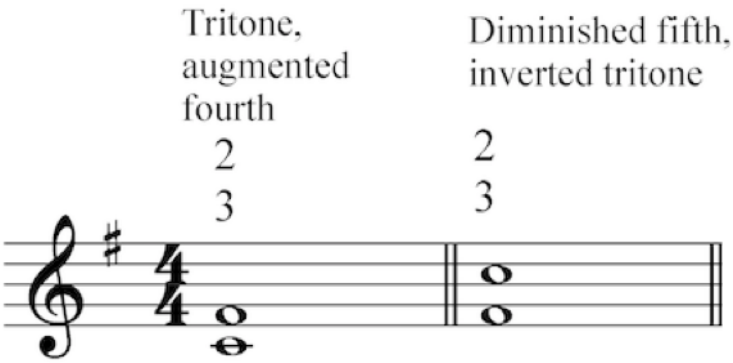
Example 3.16: The tritone and its resolution (scale degree four to scale degree three, and scale degree seven to the tonic)



The resolution to the tonic pitch and scale degree three of the key is what gives the tritone its tonic-defining function.

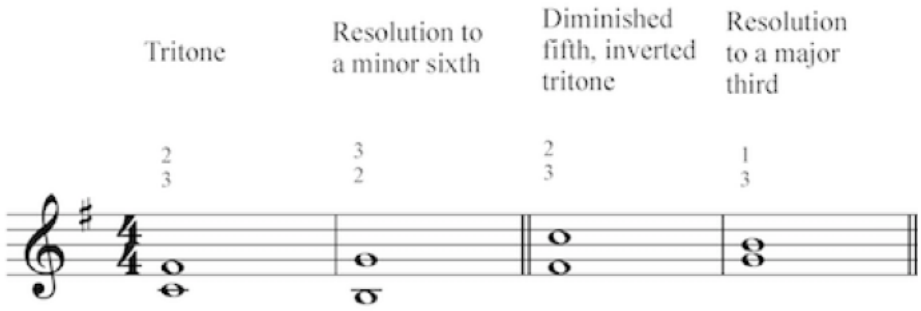
In order to connect this exercise to the Fifths and Thirds exercise, the teacher can explain that the diminished fifth uncovered in the Fifths and Thirds exercise is the inverted tritone. The teacher can ask the student to form an interval using the same notes of the tritone (C-natural and F-sharp) but make the top note of the tritone (F-sharp) the bass note and the bottom note of the tritone (C-natural) the top note of the new interval – a diminished fifth interval.

Example 3.17: The tritone and its inversion, the diminished fifth



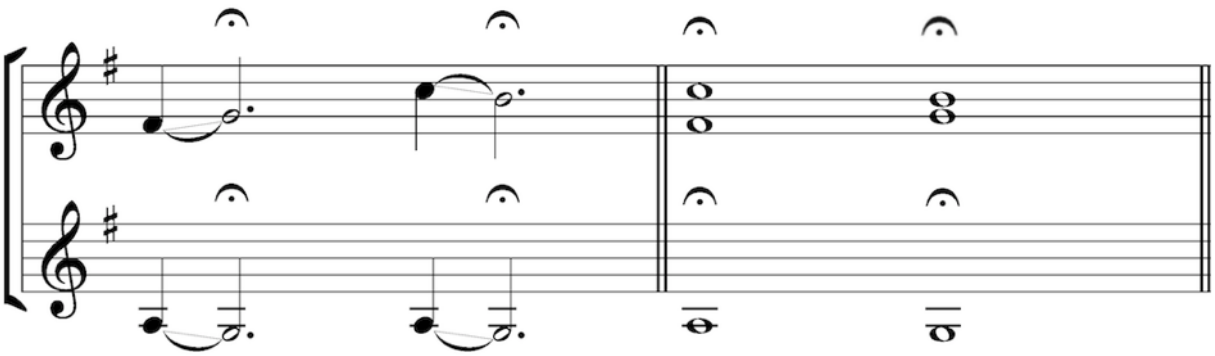
The teacher and student can discuss the feeling of the sound and the sound of the feeling for both intervals to determine that both versions, without the appropriate resolution, create similar intervallic tension and have a similar physical feeling in the left hand. However, their resolutions are different, and it is important to differentiate the two. The resolution of the tritone in G major results in an *outward* resolution to a minor sixth while the inverted tritone resolves *inward* to form a major third. The resolving pitches of both intervals move by half-step motion producing the strongest resolution.

Example 3.18: The tritone and its resolution to a minor sixth; the diminished fifth and its resolution to a major third



The student can now play the inverted tritone and practice its resolution using the correct voice-leading they learned when resolving the tritone. The results should be:

Example 3.19: The diminished fifth and its resolution (scale seven to the tonic, scale degree four to scale degree three)



Once the student can comfortably play and hear how the tritone and the inverted tritone resolve, the teacher should point out that in both cases the resolving notes are the root and the third of the G major triad and that scale degree seven resolves up by half-step to the tonic and the scale degree four resolves down by half-step to the third.

3. Arpeggios

Arpeggios are the notes of a chord played in succession in a single voice. This exercise allows the student to connect the harmonic triads explored in the Fifths and Thirds exercise to

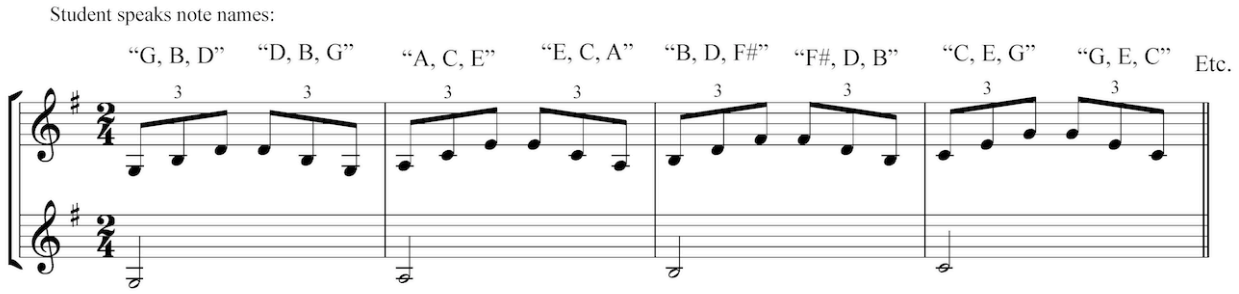
how they more commonly appear in violin repertoire, i.e., arpeggios. Because it is usually not physically possible to simultaneously play the root, the third, and the fifth of a triad in a closed-position on the violin, students will need to understand and experience the chords in their melodic, or arpeggiated form. Students will be asked to arpeggiate the diatonic, root-position triads of the major scale, without notated music. Without sheet music the student will need to decide which notes to play based on their understanding of the relationships among the three notes in a triad. It will help students understand arpeggios as broken chords and thus become more inclined to hear and understand the implied harmony when playing arpeggios. Students will be asked to speak, sing, and play as tools to reinforce the information.

Since the student will now be playing the triads in their melodic form, the teacher can provide an additional explanation of triads: a major third followed by a minor third make a *major triad,* a minor third followed by a major third make a *minor triad,* a minor third followed by another minor third make a *diminished triad.*[41] This lesson is made up of a variation of exercises. For the first exercise the student will identify the pitches of each triad through speaking the names of each pitch, speaking the terms "root," "third," or "fifth" *while* playing, as well as singing each pitch without playing.

The examples will remain in the key of G major. While the teacher plays the tonic, G, the student should speak the names of the pitches of the tonic triad in ascending and descending order: "G, B, D" and "D, B, G." The teacher can encourage the student by playing the root of each triad on the violin during the sequence of steps.

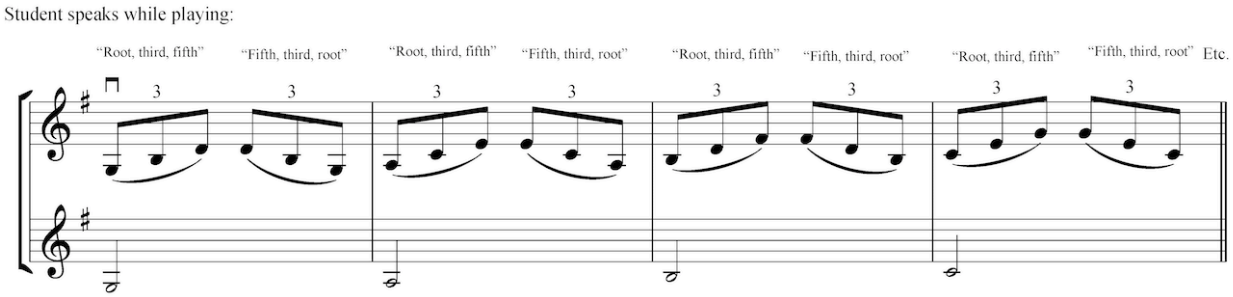
[41] Piston, 14.

Example 3.20: Student speaks the names of the pitches of each triad of the G major scale



Once the pitches are identified, the student can play them on the violin along with the root drone played by the teacher. Next, the student will play the arpeggiated triad on the violin and speak "root, third, fifth," and then "fifth, third, root" for each subsequent note.

Example 3.21: Student speaks "root, third, fifth" for each note of the triads of the G major scale

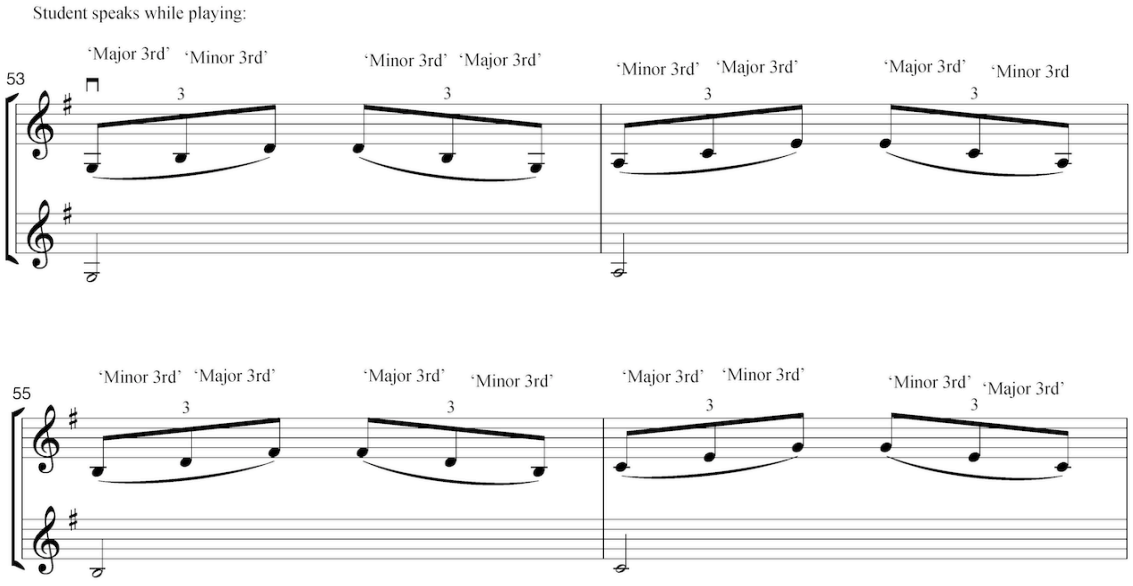


Once the student is comfortable playing each triad they should sing each note of the triad aloud using note names, not playing the violin. The teacher can initiate the exercise by playing the root of each triad, asking the student to audiate the triad, then sing. During this step, it is helpful to discuss the feeling of the sound (how the voice feels), and the sound of the feeling (how the interval sounds) of each interval to build aural skills. Specifically, differentiating between major and minor thirds helps the student to ultimately be better skilled at identifying major, minor, and diminished triads. For example, when I vocalize a major third interval, I want to raise my eyebrows because it feels as though my voice is reaching up. The feeling I get when I sing a minor third interval is closed and is most accurately sung when my voice makes a small

glissando to the interval. Not everyone will have the same feelings, but talking about how intervals sound and feel in the voice will help build strong ear-training skills.

For the next exercise, the student will play the triads on the violin, arpeggiating slowly, and carefully tuning the members of the chord to the root drone played by the teacher. The student should hear each pitch in their head before playing and listen carefully to aim for resonating intonation. To help the student listen and plan for accurate intonation, the teacher can remind the student that each triad is made up of a major or minor third as well as a perfect fifth (except for the diminished triad on scale degree seven). As the student plays, it is useful to identify if the thirds are major or minor, which will better prepare them for upcoming steps in naming triads.

Example 3.22: Student speaks "major third" or "minor third" for each interval of the triads of the G major scale

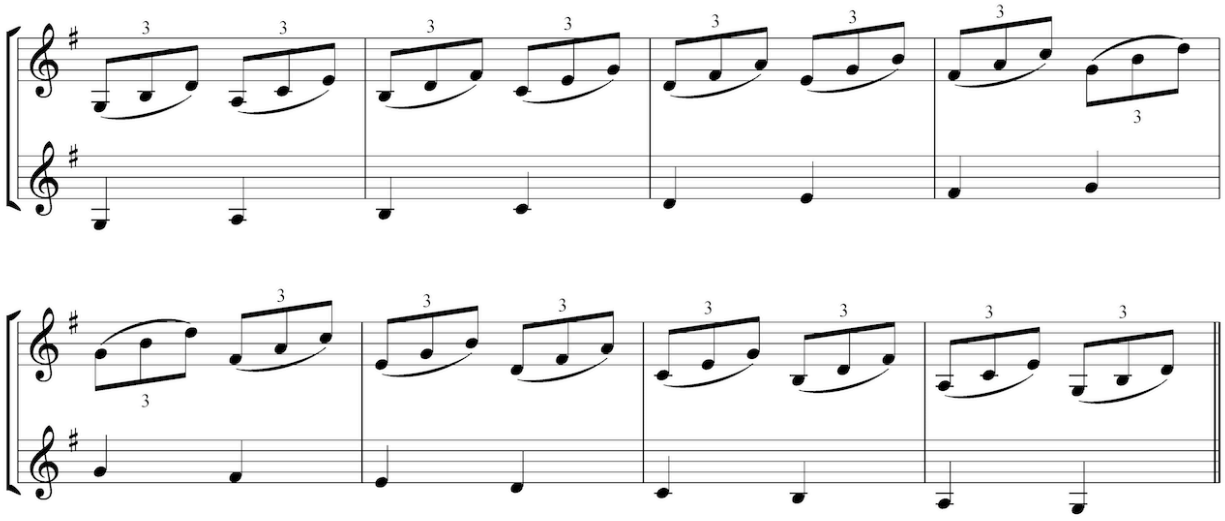


In the final exercise, the student will play each triad in ascending form only, omitting the descending arpeggio played in the previous step. This will require the student to keep track of the root of each chord as they ascend through the scale as well as understand the relationship formed

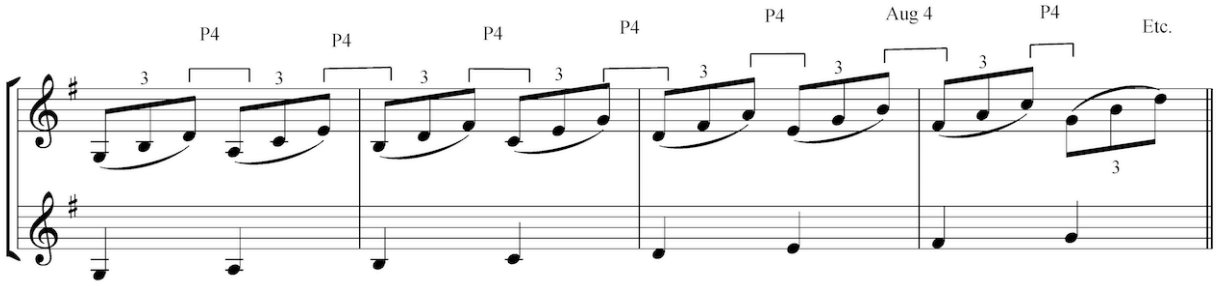
between the fifth of one triad to the root of the next. Example 3.23 is composed so that the teacher plays the root of each triad along with the student. This will result in an un-resolved F#-diminished triad on the way down the triad. Once students are comfortable with the exercise, teachers can address this issue.

Sequential arpeggios, commonly found in repertoire, will have a connecting interval between the chords, much like that of the perfect fourth in this exercise that exists between the fifth of one triad to the root of the next. For this exercise, the teacher can initially leave out the drone to observe the student's ability to track the root of each triad on their own. The drone can be incorporated to help with accurate intonation once the student has demonstrated their ability to play each triad correctly, or if the student needs extra support in the process. In order to avoid students proceeding through the exercise mindlessly, the teacher can ask the student to play through the same exercise while singing simultaneously.

Example 3.23: Arpeggiated triads, ascending only



Example 3.24: Ascending triads (demonstrating the interval formed between the fifth of a triad to the root of the next)



This method of learning arpeggios is an alternative to learning from notated music, and it promotes and emphasizes learning and understanding through listening. It may also remove an element of distraction so that the student can focus better on what they are hearing and playing. Teachers could use the proposed approach to learning and playing arpeggios (with a drone and having the student determine the notes of the arpeggio) for learning other arpeggio variations in their studio.

4. Ear-Training and Names of Chords

The student will hear and distinguish the differences between the triads of the diatonic scale and learn the names of the triads. The teacher and student should perform the Fifths and Thirds exercise with the student playing the fifths. While playing, the student will announce "major," "minor," or "other" for the quality of each triad they hear.

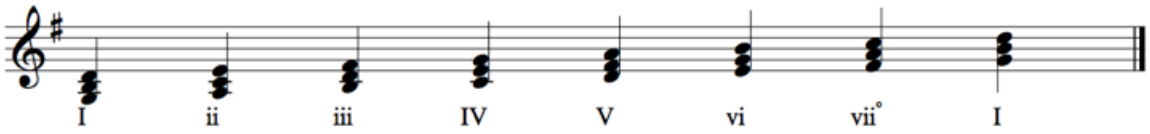
The student should be encouraged to identify the triads by listening carefully. If the student is unsure about the quality of a triad, it may be helpful to compare it to the sound of the triad preceding and following, and review the intervals of the different kinds of triads. Sometimes students have trouble hearing the difference between major and minor triads. Often this confusion is resolved when they switch from playing the fifth to playing the third, as they may be more successful when relying on the root to third relationship. Further steps in this

exercise are to ask the student to sing the notes they hear in order to connect the sounds (or feelings of the sounds) in their voice with what was learned in the Arpeggios exercises.

The concluding exercise of Triadic Harmonization of the Scale addresses the name of each triad that the student has heard, played, and arpeggiated thus far. The step of learning the names of the chords can be helpful for students as they get ready to learn about harmonic progressions.

A simple way for the student to label the chords is to speak the scale degree number of the root of each triad, along with its corresponding major, minor, or diminished quality that was determined earlier. For example, while playing the G major-tonic triad, the student will say "one, major," or while playing the A minor triad that follows, the student will say "two, minor," etc. Before understanding how chords function within a harmonic progression, the student must first understand the origin of the chords, i.e., the diatonic scale.

Example 3.25: Name of each triad of the diatonic major scale using upper and lower case roman numerals



The teacher and student can play the Fifths and Thirds exercise while the student speaks the name (including quality) of each chord such as G major, A minor, B minor, and so on. The teacher should explain to the student that the successive chord qualities built on scale degrees within a *major* key would be the same as shown in G major no matter the key. Note that the triads of the scale are not in a musical sequence that resembles the harmonic progression students will come across in repertoire. Students are now prepared for hearing, identifying, and discussing harmony necessary in studying the selected études of Chapter Four.

Assessment Tool: Teachers ask students to sing root-position arpeggios for a dictated simple progression such as: I-IV-V-I. This tool will require the student to identify the root of each chord and sing the correct pitches of each triad. The exercise can be performed using the melodic patterns of the Arpeggios exercise from Example 3.22 or Example 3.23.

Students may experience difficulty identifying the root of a triad in relation to the previous triad. The teacher can make suggestions to effectively determine the root of each triad by determining the intervallic relationship between the last pitch of one triad (the fifth of the triad) and the root of the next. It may be helpful for students to imagine playing the violin as they sing, and to identify the chord qualities of each triad prior to singing. Teachers may reassure the student that, by this point in their learning, they have already sung some of the same combinations of notes that resemble the progression in this exercise and that they are merely forming connections between chords that they have heard many times in their musical experiences.

Before moving to Chapter Four, it is useful to review the connections between topics in Chapter Two and Three. Now the student has a more complete understanding of all the pitches of the scale explored in the Key Prep lesson and its subsequent exercises. The student also understands the typical behavior of each scale degree in relation to the tonic. This information will help them further understand how triads and chords function in music.

Chapter Four: Études

Chapter Four continues to build the student's skill of listening to harmonies using a duet accompaniment, this time within a musical composition. Teaching approaches in this chapter highlight major harmonic events in selected études to help students understand how harmony functions in music and how harmonies relate to one another. This chapter expands on the isolated harmonies learned in Chapters Two and Three by observing how harmonies function together to create, for example, cadences that help music travel to different keys.

The only musical materials used in this chapter are carefully chosen études. Études are not overwhelmingly long and their harmonic content follows a predictable and coherent structure. Pedagogically, many études offer a concise and accessible platform from which to address harmonic content as well as important technical skills. Furthermore, because of the extensive étude repertoire available, violinists may use études to advance their technique through all stages of learning.[42]

Each étude presented in this chapter comes with a harmonic analysis and two duet accompaniments for the teacher to play in order to help students hear the implied harmony of the melodic line. The listening skills students build in Chapters Two and Three are intended to help identify harmonies and to more easily approach intonation through their understanding of harmonic content. This chapter uses études to illustrate the key-centric thinking and harmonic tuning discussed in Chapter Two.

Teaching methods presented in this chapter prepare students for hearing and understanding specific harmonic events. The first method asks students to point out when they hear or feel areas in the music that are harmonically different from what preceded. This allows

[42]Examples of étude literature are provided later in this chapter.

students to utilize terminology and connect musical examples to earlier discussions regarding chords, intervals, and key areas and their relationship to harmony. The next teaching method provides the project's first introduction to seventh chords using the tonic-defining dominant seventh chord. Students will apply their knowledge from the tritone exercise in Chapter Three to learning about, and identifying, dominant seventh chords and their tonic-defining function in études. Learning about the dominant seventh chord then helps students to identify, hear, and understand cadential occurrences in music, specifically the provided études. The final section of this chapter provides four carefully chosen études, and their respective duet accompaniments and harmonic analysis. A worksheet is provided for each étude that contains a list of significant cadences as well as other important harmonic information teachers can address with their students during the learning process.

Given the vast number of available études it was necessary to decide on guidelines for selecting the final four études for harmonic analysis and duet accompaniment composition. This multifaceted and informative process was comprised of four investigative phases:

1: Collecting études for solo violin

2: Collecting études written for violin duo

3: Formation of smaller group of étude books

4: Final selection of specific études for analysis and duet creation

The process of compiling, selecting, familiarizing, and categorizing materials further helped establish ideal technical, harmonic, and musical elements most suitable for this project. In addition, the process provided an in-depth knowledge of the appropriate études to use with students of all skill levels.

Phase One: Collecting études for solo violin

The first challenge was compiling the étude literature intended for advanced student violinists. This process began with a review of my personal collection of étude books acquired over the years as a student and teacher. Conversations with friends and colleagues and exploring online blogs (such as Violinist.com) uncovered additional popular books. The generous offerings on the International Music Score Library Project (IMSLP) portal also provided valuable insight into repertoire that is easily accessible online. Through this process, twenty étude books written by sixteen different composers were identified, all of whom were violinists, composers and pedagogues. They all lived between the mid 1700's to the mid-to-late 1800's (except for two, Harvey Whistler and Eugene Ysaÿe) and all were of European descent (except for Harvey Whistler). The complete list of these étude books, which I have given the descriptive title "Large Collection," is provided in Appendix 4.1. In addition to finding a large number of books to choose from, the first phase of research also helped confirm the need for the final études to be extracted from books that students and teachers can easily obtain. The difficulty of acquiring certain books, due to their cost, availability, and language barriers, resulted in the following criteria for the final selection of books to form the Large Collection:

1. Accessibility and availability
2. Personal familiarity
3. Wide usage in current violin instruction

The first phase also led me to research literature on the topic of violin études, which resulted in reading *A History of the Violin Étude to About 1800*, by K. Marie Stolba. This book is a comprehensive history of the violin étude from 1523-1800. Stolba investigates the similarities and differences between études and exercises, followed by an examination of the development of

études and of literature found in many countries including France, Germany, England, and Italy.[43] The necessity for clarification between the two terms came to light in the 1800's resulting in the conclusion that while nearly anything ('the most trivial figure')[44] could be considered a study or exercise, an element of *art* was required for an exercise to be considered an étude. Stolba states, "an étude is a complete composition with both musical and pedagogic intent and content featuring at least one consistently recurring problem of physiological, technical, or musical difficulty which requires of the player not only mechanical application, but proper study and correct interpretation as well."[45] An exercise, however, is chiefly mechanical, drilled, and employs physiological faculties; it is never a complete musical composition.

Based on Stolba's findings, all the étude books, and ultimately the individual études, featured as part of this project should fall clearly outside of the category of exercise. Books that are explicitly technical in their teaching objectives, for example, the body of pedagogical works by Otakar Ševčík, have been omitted. Many of these books fall into the exercise category because of their focus on technical aspects of violin playing such as shifting or bow technique, and they lack discernible harmonic progressions and cadences. Instead, I focused on the materials that allow students harmonically relevant experiences, similar to what they may encounter in music.

The books selected for the Large Collection present a vast spectrum of technical, harmonic and musical demands. They range from the first position études found in Wohlfahrt, Op. 45 book one, to Paganini, Twenty-Four Caprices, which require a broad array of advanced knowledge of violin technique. For the purpose of this project, the most advanced high school students will benefit from studying the études that are technically and harmonically simple.

---

[43] K. Marie Stolba, *A History of the Violin Étude to About 1800 (*Kansas: Fort Hayes Studies, 1968), 1.
[44] Ibid.
[45] Ibid, p. 8.

These are études with minimal altered chords and chromaticism. The études for this project were carefully selected to help students understand how harmony functions in music.

Phase Two: Identification of études for violin duo

Out of the twenty books in the Large Collection, only one, Wieniawski, Études-Caprices, Op. 18, is written in a duet form. The lack of books with duet parts in the Large Collection prompted a search for violin études which included a second violin part written by the composer, intended to enhance the learning process, rather than duets written later, created to supplement the original publication. This search resulted in thirteen books that make up the Duet Collection. All the composers in the Duet Collection are represented in the Large Collection as well and are well known to violin teachers. Some books in the Duet Collection are not available for purchase. Others, do not have an English translation available and include descriptions of technique and pedagogical approaches difficult to understand without an available translation. Some books cover a wide range of levels of techniques in one volume such as Kayser Op. 32 and Mazas Op. 34. These books begin at a very basic level and move through advanced left and right-hand techniques.

None of the books in the Duet Collection are included in the final Small Collection for one or more of the following reasons: they are for beginner students, they cover too large of a skill range (from beginner to advanced), the duet accompaniment is too complex for this project's objectives, or they are too difficult to acquire.[46] All of the books in the Duet Collection are new to me. The Doflein Method Books, a series of four books sequenced from beginning violin to advanced technique utilize duet playing in every book. This is a well researched and musically and pedagogically engaging series. Although not included in this project, I have found some of the exercises specifically aimed at beginner students to be useful as they provide simple

[46] Duets tend to be more musically equal while the technical demands of the accompaniment part are simpler.

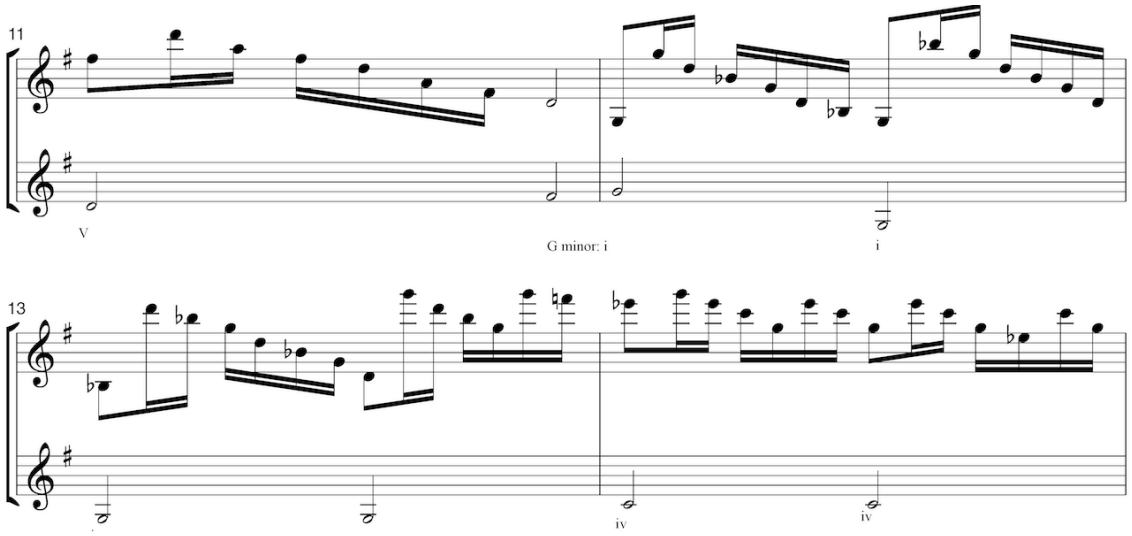
harmony lessons using open strings. I plan to incorporate elements from the Doflein series into my teaching after some more detailed exploration of the collection. Teachers interested in incorporating duet playing using études should review the books in the Duet Collection. A bibliography of the Duet Collection is provided in Appendix 4.2.

Duet parts bring life to a solo line through harmonization; they provide musically fulfilling experiences as students engage in listening more harmonically and enjoy playing with another violinist, much like chamber music. A duet accompaniment that plays an equal musical role would be considered a duo, much like violin and piano duos where the piano and violin exchange roles as soloist and accompanist. For this project the duets composed are intended to add harmony so that the teacher can focus on the student's étude. With this in mind a rhythmically and melodically simple duet part is ideal. Conversely, a rhythmically busy accompaniment can distract the student from listening harmonically. To fulfill the goal of providing primarily harmonic support through duet accompaniments, two duet options are provided for each of the selected études. The two options are intended to be used at different stages of learning.

The duet accompaniments for each étude are categorized as "Simple" and "Musical." The Simple accompaniment mostly contains the root of chords with minimal rhythmic interference and consists of long sustained pitches to encourage the student to hear and feel the relationship between the bass and the melodic notes. Sometimes, depending on proper voice-leading, the accompaniment may need to play another part of the harmony besides the root. Although often musically less interesting, the simple accompaniment helps students hear the implied harmony when learning the études and is useful during early stages of learning.

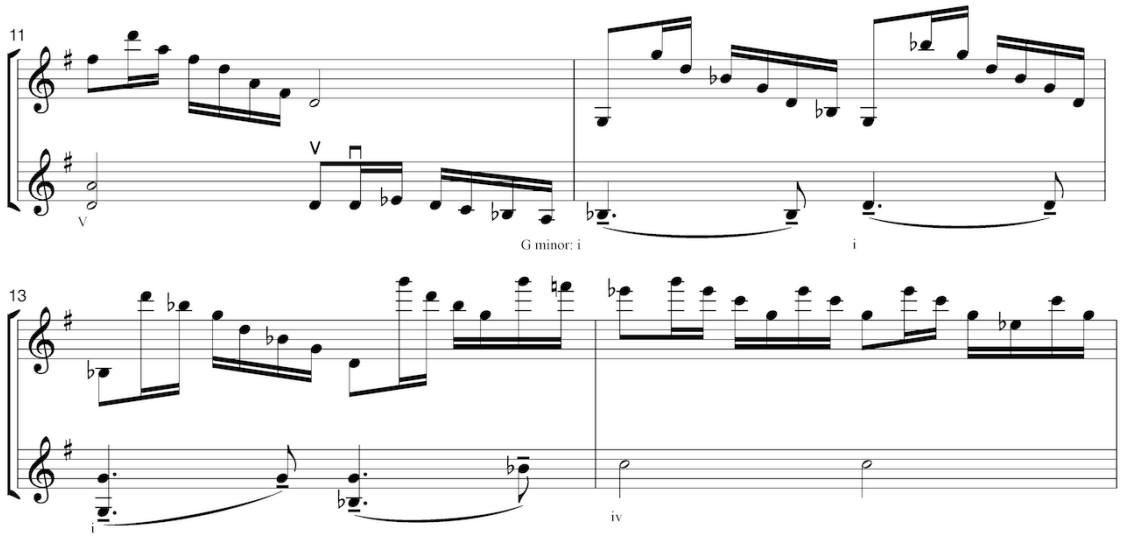
The Musical accompaniments contain more notes of the harmony through the use of double-stops and arpeggiation, as well as more active rhythms. The Musical accompaniments may also respond to register change and the melodic contour of the solo violin line. The Simple accompaniment, in example 4.1, will remain on an open G-string to help the student recognize the sustained G minor harmony and to avoid confusion by changing notes in the accompaniment (even if they are the same pitch in different octaves). The harmony in the Musical accompaniment for mm. 12-13 of Kreutzer, Étude no. 10 (seen in example 4.2) stays in G minor but the arpeggiation moves higher in register.

Example 4.1: Kreutzer, Étude No. 10, mm. 11-14 (Simple accompaniment, P. Amirinazari)



Once the student is able to understand that the arpeggios in mm. 12-13 do not change harmony and remain a G minor chord, the musical accompaniment can be used to make the experience more musically engaging and harmonically interesting.

Example 4.2: Kreutzer, Étude No. 10, mm. 11-14 (Musical accompaniment, P. Amirinazari)



Phase Three: Formation of the Small Collection

The Large Collection, created in Phase One of this project, demonstrates a broad range of technical, harmonic, and musical demands. Many books in the Large Collection are too complex and difficult for the skill level of the students this project hopes to reach, and thus required narrowing down. In Phase Three I selected six books from the Large Collection that best meet the goal of helping advanced teenagers (my target demographic) with harmony.

I first eliminated books that were too technically challenging, such as the works of Paganini, Wieniawski, Vieuxtemps, and Ysaÿe. Although there may be high school aged students preparing selections from these more difficult books for college auditions, these books are generally more appropriate for college level students. They require a technically advanced command of the violin and listening skills well beyond what the exercises in this project demand.

Next, I continued to make deliberate choices to maintain the focus on hearing harmony without over-complicated or challenging technical components. Lastly, the Small Collection mostly follows the tonal and rhythmic traditions of 18th and 19th century tonality, and fit my

pedagogical preferences for this skill level. The Small Collection is made up of the following six books:

- Jacques-Féréol Mazas, Forty Selected Studies, Op. 36 Book 1
- Jacob Dont, Preparatory Exercises, Op. 37
- Rodolphe Kreutzer, Forty-Two Studies
- Federigo Fiorillo, Thirty-Six Études
- Jacob Dont, Études and Caprices, Op. 35
- Pierre Rode, Twenty-four Caprices

Phase Three also included additional research into the availability of supplemental duets for the books in the Small Collection. Violin accompaniments have been composed for Kreutzer, Forty-Two Studies, Fiorillo, Thirty-Six Études, and an obscure piano accompaniment for Dont, Preparatory Exercises, Op. 37. Adolf Grünwald (1826-1891), who served as a violin professor at the Berlin Conservatory composed the duet accompaniments for the Kreutzer, Forty-Two Studies. The duet part was composed almost a century after Kreutzer composed the études. Louis Spohr (1784-1859), a German composer and violinist, composed the accompaniments for the Fiorillo, Thirty-Six Études, which harmonically and stylistically follow the characteristics of Fiorillo's composing. The piano accompaniments for Dont, Preparatory Exercises, Op. 37 were found in the IMSLP catalog without any information on the composer or publisher. Further research on these obscure piano accompaniments has not yielded any additional information on their origin. These duets provide an insight into the harmonic structure and characters that these composer-pedagogues perceived and valued in the particular études. They served as a resource for harmonic analysis and a guide to composing accompaniments in this project.

Phase Four: Final selection of specific études for analysis

I began Phase Four by playing each étude in the six books from the Small Collection on the violin. The process of familiarizing myself with the individual études helped formulate the

criteria to use for the final selection process. For each étude in the Small Collection I documented the following items:

- Key
- Harmonic complexity
- Technical Content
- Special Notes
- Duet availability
- Duration

Key and harmonic complexity were used to classify each étude and were the most valuable pieces of information. Each étude was categorized as Basic, Intermediate, or Advanced. Basic Level études are those that modulate only to keys closely related to the tonic key, with any minor keys present being relative to the tonic major key.[47] Basic Level études are mostly diatonic, with few to no chromatic notes,[48] and they contain few non-chord tones. Intermediate Level études modulate more frequently and to more distant keys, including parallel keys, and they contain more non-chord tones. Advanced Level études also travel to distant keys, and may contain altered chords, as well as chromatic notes outside of the key. Since the exercises in this project only address diatonic music, only Basic and Intermediate Level études are used.

The special notes category began as a way to take note of similarities and differences between études that could influence the decision-making process. For example, the range of the left-hand positions required to play an étude was noted in this process and it helped to determine the appropriate skill-level. The special notes category also included descriptions of the rhythmic content, which helped find études with simple rhythms. Tracking the melodic content led to selecting études that are primarily scalar or arpeggiated. These are best suited for the exercises in this project because scalar melodies offer an immediate association to keys and scales, similar to the Key-Centric and Key Prep exercises in Chapter Two. Since arpeggios are technically the

[47] Relative minors are easier to understand than parallel minors, which require many new accidentals.
[48] Referring to tones outside the major-key scale.

sounding of a chord in succession rather than simultaneously,[49] they are the most common mode violinists will play chords and therefore are a great resource for teaching chords. The inherent relationship arpeggios have to chords make arpeggiated études a useful resource in creating further connections between the exercises in Chapter Three and the musical examples found in études.

Études with existing supplemental duet accompaniments were useful as I could compare the harmonic analysis to what other teachers found valuable. Where existing supplemental accompaniments are available, they will be provided in Appendix 4.3.[50] Lastly, initial lessons shouldn't be overwhelming for either teachers or students, and therefore the length of each étude was an important consideration.

The final four études selected for teaching harmony are in major keys. The melodic content is made up of a mix of scalar and arpeggiated music, demonstrating basic and intermediate harmonic complexity. The final selections, in key order, are:

- Federigo Friorillo, Étude No. 3 in C major
- Rodolphe Kreutzer, Étude No. 10 in G major
- Jacob Dont, Op. 37, Étude No. 6 in D major
- Rodolphe Kreutzer, Étude No. 8 in E major

The detailed information collected on each étude in the Small Collection gave me a deeper knowledge of the étude repertoire as a whole. The four phases of research helped in making the best selections for this project, and have helped me choose études for future lessons that address more harmonically complex music.

---

[49] "Arpeggio." *Grove Music Online,* 2001; Accessed 11 Mar. 2020. https://www-oxfordmusiconline-com.ezproxy.library.wisc.edu/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000001327.

[50] Such as the Grünwald accompaniment for Kreutzer, Forty-Two Studies and the Spohr accompaniment available for the Fiorillo, Thirty-Six Études.

Teaching Methods

The methods presented help teachers incorporate the discussion of harmonic topics during the étude learning process. Teachers may choose to approach teaching harmony on their own using the resources provided; however, included in this chapter are recommended exercises that I developed while working with students. The exercises are practical options for systematically teaching harmony while maintaining a focus on listening and playing. The four selected études, and analyzed duet accompaniments, are provided at the conclusion of this chapter.

Students build on the terms, exercises, and sounds learned in previous chapters to improve their ability to identify what they hear, such as tonic chords, names of intervals, and cadences. The exercises connect terminology students learned earlier to musical examples by highlighting cadences and utilizing the duet accompaniment to work on intonation.

"Stop when you hear or feel something 'different'"

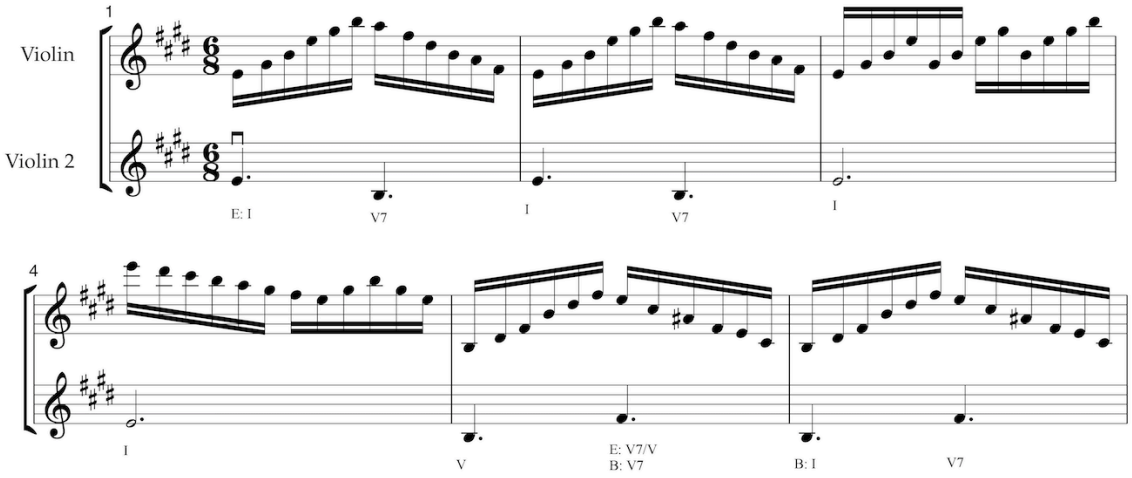
This lesson suggests how to incorporate the harmonic analysis into a private lesson. It helps connect what a student hears and plays on the violin to the harmony being created with the duet accompaniment. Students will be asked to stop playing when they hear or feel something different or unexpected in regards to the keys, chords, or harmony of the music they are playing. This allows the student to initiate a conversation about what they hear and feel and provides the teacher an opportunity to help the student understand the different sound or feeling through the information available in the harmonic analysis. Within the same étude, different students may find different aspects to work on. For example, I have found students perceive "something different" by reacting to small melodic changes such as descending and ascending lines within a single phrase *or* measure. Some students react to new finger patterns and some students react to

larger harmonic changes. These differences mean the structure of the lesson is dependent on what the student discovers, and the teacher needs to tailor the lesson accordingly. The Simple duet accompaniment is best suited for the first lesson because it provides the simplest harmonies, is least distracting, and will guide the student to hear the existing harmony in an uncomplicated way.

Treat this exercise as a way to help students uncover more information on their own. Facilitate the discussion by asking helpful questions, such as if the information they are sharing is based on what they hear, feel or both. This helps students practice *communicating* about music using words, in addition to identifying sounds and harmonies. In previous chapters, the teacher led the teaching of new concepts. In this exercise the teacher is responsible for guiding the student as the student figures out how to identify and describe what they are hearing in their own words, using the concepts learned in previous chapters. Because this exercise allows the student to take the initiative of communicating what they are hearing in the étude, I find it to be a useful tool to evaluate what the student has retained from previous lessons, as well as what they are confused about.

When a student shares an example of a spot that sounds or feels different, it is important to first clarify if the response is based on sound (what they are hearing), sensations (what they are physically feeling), or both. Often, it is helpful to ask the student to play the example including the measures before and after the example to hear it in context. Prioritize defining the sounds and feelings using terminology from previous chapters, and repeatedly play the example with both violin parts to maintain focus on listening rather than reading the notes on the page. I have provided a few examples of areas students commonly refer to in this exercise.

Example 4.3: Kreutzer, Étude No. 8, mm. 1-4 (Simple accompaniment, P. Amirinazari)



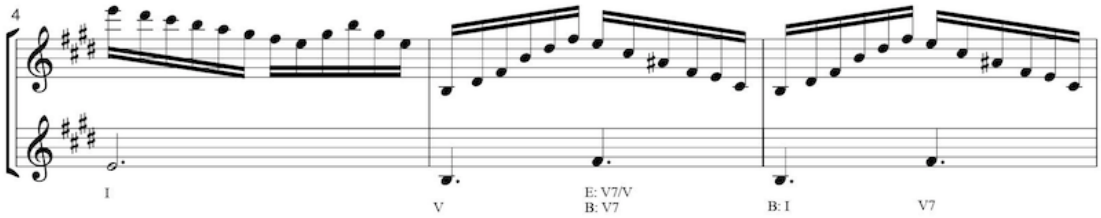
In Kreutzer, Étude No. 8, students frequently point out mm. 3-4 as being "different." Students recognize the physical difference in the left-hand pattern in these measures, compared to the repeated left-hand patterns in mm. 1-2. I first ask the student to clarify if they are referring to a sound, feeling, or both. Harmonically, mm. 3-4 stay on the tonic chord, unlike the previous two measures that switch between the tonic and dominant chords. This is a chance to steer the student toward listening and discussing the harmonic event that makes mm. 3-4 sound and feel different from mm. 1-2.

Playing from the beginning will allow the teacher to also discuss the chord changes occurring right away in mm. 1-2. Once the student recognizes that there are chord changes, the teacher can decide how detailed the discussion should be. For example, in the initial lessons it is helpful to ask the student to listen to the notes in the accompaniment to identify what root is being played to assist in hearing the chord changes. In later lessons, when students are more familiar with the exercise, teachers can investigate in greater detail how each pitch of the melody harmonically relates to the root, and how subsequent chord changes can be recognized.

Once the chord changes are recognized in mm. 1-2, the teacher should ask the student to play mm. 1-4 and to identify what, if any, chord changes are occurring in mm. 3-4. The contrast between the measures with chord changes (mm. 1- 2) and the measures without chord changes (mm. 3-4) will be what feels different. The left hand finger pattern also feels physically different, going from playing strict arpeggios to playing a mix of arpeggiation and scales.[51] The student should now be alert to the fact that mm. 3-4 are arpeggiating the tonic E major triad for two full measures.

Measure 5 in Kreutzer, Étude No. 8 is also a spot that is recognized as "something different."

Example 4.4: Kreutzer, Étude No. 8, mm. 4-6 (Simple accompaniment, P. Amirinazari)



This measure is useful for teaching a variety of harmonic lessons. Measure 5 returns to triadic arpeggiation beginning on a B major triad, which creates an obvious physical change from the previous measures. There is an aural *and* physical feeling of change in the second half of the measure with an A-sharp, signaling B major. It is important to clarify that there is not a key change in the first half of m. 5, but just a chord change since the B major triad belongs to the key of E major as the five chord. The appearance of the A-sharp in the second half of m. 5 signals a possibility of a key change. This measure also demonstrates how keys can move from one to another using a common chord that exists in both keys. For example, a B major chord is the five

[51] Students could also be noticing the rhythmic change, the hemiola, that occurs in mm. 3-4.

chord in E major and also the one chord in the key of B major, demonstrated at the beginning of measures 5 and 6.

A large topic of discussion that is outside the scope of this project, but could prove to be useful for students, is how different keys physically and aurally feel different on the violin. For example, E major is a key that can use two open strings on the violin and B major eliminates one of those strings, the open A-string. These differences create physical changes that could be a helpful tool for students to consider when identifying different keys and harmonies.

The Dominant Seventh Chord

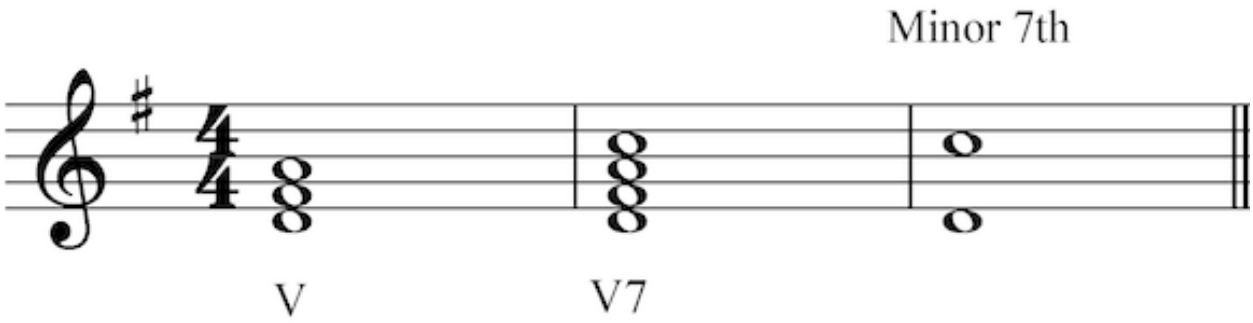
This exercise introduces the dominant seventh chord and tonic relationship commonly found in diatonic music. The strongest harmonic direction or tendency in western tonal music is experienced in the dominant-to-tonic relationship as it decisively defines the key. The student will learn how the dominant seventh chord sounds and feels in the music they are playing and the chord is easily found in the selected études of this chapter. Because of its need for resolution, the dominant harmony's tonic-defining function is easily detectable in sound and feeling and is best learned in musical context. Helping the students recognize this sound and feeling as they play is an essential step to understanding how harmony functions. "Establishment of a key or confirmation of it, reinforcing the tonic by means of dominant harmony, is an everyday occurrence."[52]

Exposing the tritone embedded in the dominant seventh chord helps students understand and feel why the chord has a tonic-defining tendency. Identifying new key areas is a central topic in this project and the dominant to tonic relationship confirms the arrival of a new key. The dominant seventh chord's resolution-demanding character helps explain modulations to new keys and is useful in recognizing secondary dominant functions in repertoire, which are outside

[52] Piston, 56.

of the scope of this project. The decision to introduce a lesson on dominant harmony at this later point in the project, rather than earlier, is deliberate. Hearing and identifying dominant harmony in context is more important than struggling to learn how to build seventh chords or learning which chords typically have sevenths on them. The student has the tools by now to understand how to add a seventh to a chord. The teacher can explain that dominant seventh chords are a major triad with an additional note, a minor seventh above the root. This means seventh chords contain four notes, as opposed to three in a triad.

Example 4.5: The minor seventh above the root in a dominant seventh chord in G major

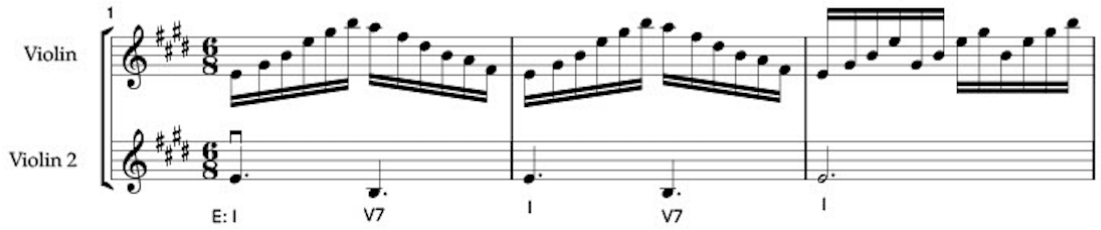


The teacher should explain that a minor seventh could technically be added to any triad; however, in diatonic music the most common is on the dominant chord, forming a dominant seventh chord. A minor seventh is also typically found on the vii-diminished chord, forming a fully-diminished vii7 chord.[53] The student can refer back to the Harmonization of the Scale exercises in Chapter Three to practice forming these chords.

The best musical example for this lesson is an arpeggiated passage that includes all of the notes of the dominant seventh and tonic chords, much like the first three measures of Kreutzer, Étude No. 8.

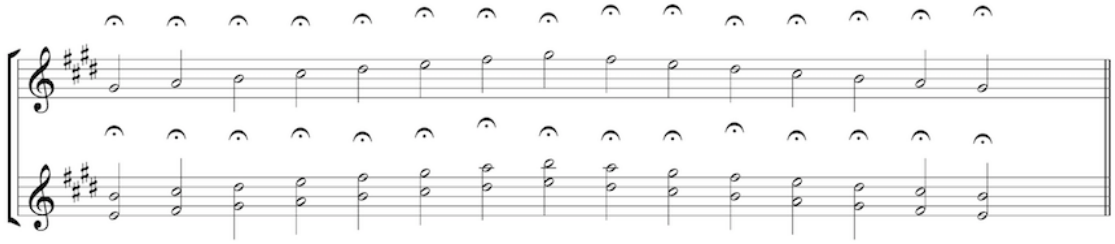
[53] It is also relatively common for a minor seventh to be found on the ii chord.

Example 4.6: Kreutzer, Étude No. 8, mm. 1-3 (Simple accompaniment, P. Amirinazari)

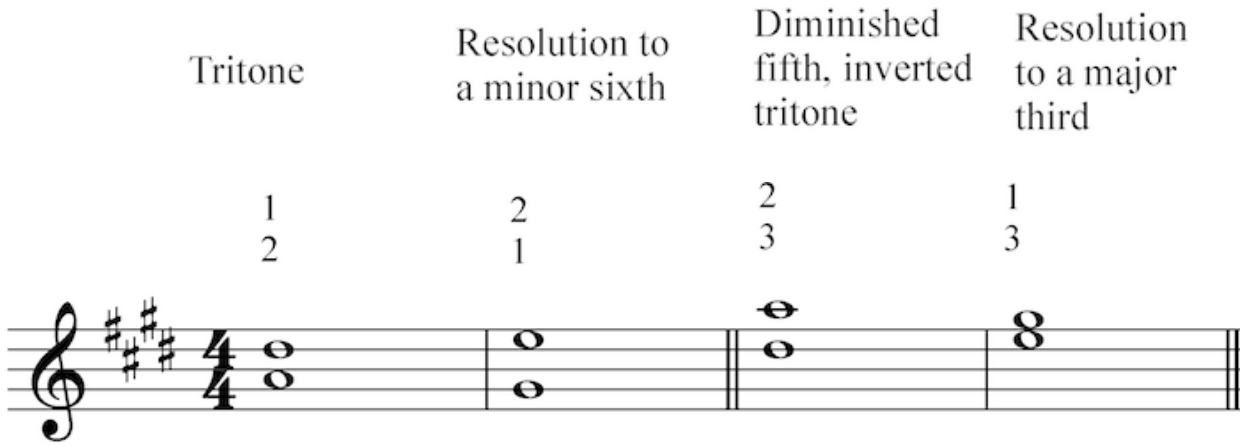


Before discussing the harmonic details of the piece, it would be useful for the teacher to practice exercises from Triadic Harmonization of the Scale with the student in the same key as the étude, specifically the Fifths and Thirds and Tritone exercises, to practice hearing and playing the diatonic chords in the key of the étude. The Fifths and Thirds and Tritone exercises for the key of E major are:

Example 4.7: Fifths and Thirds Exercise in E major



Example 4.8: Tritone (and its resolution) and the inverted tritone (and its resolution) in E major

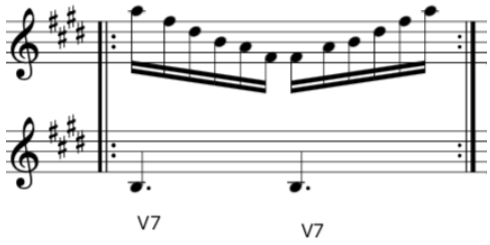


Once the student has had the opportunity to hear and play the triads and identify the tritone in E major, it is useful to ask the student to dictate the names of the notes in any pertinent chords they may come across in the étude, such as the tonic and dominant chords. When discussing dominant chords, teachers should ask the student to also include the seventh that creates the dominant seventh chord.

The teacher can begin the lesson by talking about the chords being played in the first two measures of example 4.6. If the student has already dictated the names of the notes of these chords prior to playing the étude, they should make the connection between the tonic and dominant chords in measure one. The student could also listen to the accompaniment to detect chord changes, identify the root of each chord as E and B, and then identify each chord as E major and B "major" or B "other." Hopefully the student hears the B-seven chord as major, but with a different sound quality than the very apparent major sounding tonic chord that precedes it. The tonic-defining tritone that exists between scale degrees four and seven (the seventh and third of the B-seven chord) is what gives the chord its character. The teacher can explain that the additional note, the seventh, forms the tritone that demands resolution.

Since the lowest note of the B-seven arpeggio is an F-sharp and not a B, it is particularly important for students to identify all the notes of the chord *before* playing. The B-seven arpeggio in m. 1 and m. 2 is descending. Example 4.9 helps the student feel and hear the arpeggio from the lowest to highest note, in addition to how it is written in the étude. The student should vamp on the chord in both directions (descending and ascending) as demonstrated in example 4.9.

Example 4.9: Measure 2 of Kreutzer, Étude No. 8

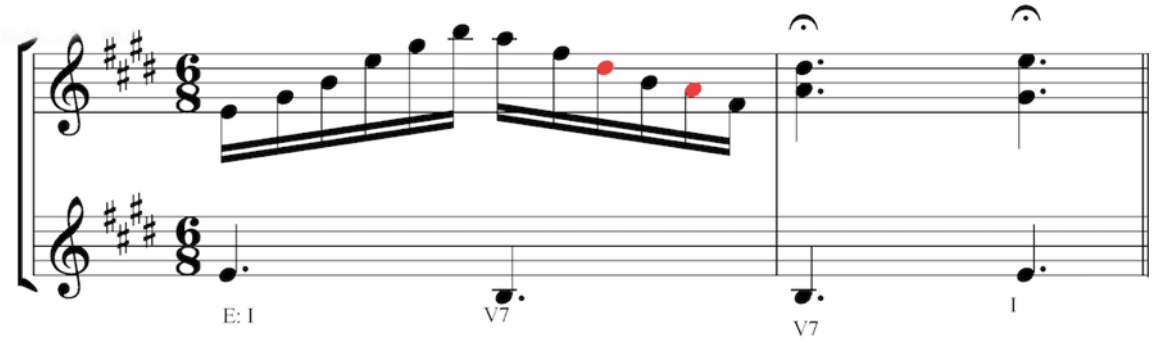


The descending, B-seven arpeggio is a good example of an arepeggio that could be used to teach inversions. Inversions are outside the scope of this project, but it is helpful to note how this arpeggio is a B-seven chord even though the lowest note the student is playing is not the root.

The teacher should explain that the relationship between the tonic and dominant seventh chord, in mm.1-2 of Kreutzer, Étude No. 8, is very common in diatonic music. When playing mm. 1-3, the teacher should ask which of the two chords, the tonic or dominant seventh, feels more stable, settled or grounded. This helps the student to hear how the two chords function together. The reasons for this behavior is explained and demonstrated through uncovering the tritone present in the dominant seventh chord.

From the tritone exercise in chapter three, the student has identified the tritone in E major being between A and D-sharp. The fourth and seventh scale degrees of the tonic key also exist between the third and seventh of the dominant seventh *chord* highlighted in red:

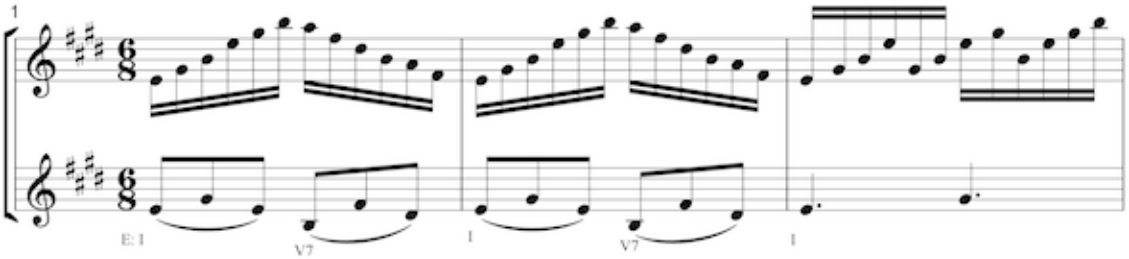
Example 4.10: Isolating the tritone and its resolution in m. 1 of Kreutzer, Étude No. 8



Once the pitches of the tritone have been identified within the dominant seventh chord, the student should play the tritone with its resulting resolution again, as demonstrated above.

The tritone will resolve outward to a minor sixth and the inverted tritone will resolve inward to a major third. Once the student has played the tritone with its resolution, the student and teacher should play through the musical example again. When discussing the resolution of the tritone in the dominant seventh chord, it is most helpful to use the Musical accompaniment that better demonstrates the resolving pitches.

Example 4.11: Kreutzer, Étude No. 8, mm. 1-3 (Musical accompaniment, P. Amirinazari)



Identifying Cadences

The ability to identify cadences is an important skill for understanding harmony. Three to four cadences are pointed out for each étude in a worksheet, and can be studied during a private lesson. The main objective is to hear and notice cadences. The exercise does not require the

student to define the specific types of cadences. Learning about the specific types - authentic, half, deceptive, plagal, etc. - would be the next step. However, it is beyond the scope of this project.

Identifying cadences in the private lesson will help students hear musical resolution that occurs in passages of music. This exercise connects the sound and feeling of the tritone resolution to how it functions on a larger scale in cadences. Hearing and feeling cadences can be an intuitive feeling. In order to cultivate this intuition for students, it is helpful to ask students where they hear cadences in repertoire they are playing, highlight them often, and ask students to listen and feel for them on their own. Students will find this knowledge helpful when working on phrasing and musical form.

On the worksheet, the cadences are listed in a recommended order of study, beginning with the longest (determined by the number of measures) dominant to tonic-key cadence. This allows the harmonies to be heard for a longer duration, which will help the student hear and feel the relationship between the dominant and the tonic harmonies. This relationship can then be referred to in shorter cadences elsewhere, specifically, significant key changes in the étude.

The Études

The worksheet for each étude illustrates key areas, lists significant cadences, and provides supplementary harmonic information that can be addressed in the private lesson. The supplementary suggestions are primarily areas in the étude with interesting harmonies that are outside of the scope of this project, but are worth noting. I have included these suggestions to inspire teachers to continue discussing harmony with their students beyond what is provided. The worksheet could serve as an answer key or guide during the private lesson.

All the resources presented will encourage students' musical development as they play and listen to the études with harmonic context (the duet accompaniments) and as they discuss and evaluate what they are hearing and feeling. Chapters Two and Three provide resources for addressing intonation which should be applied to the étude learning process as well. The duet accompaniment can be used to emphasize the tonic of a key and the root of chords to help address tuning-related problems as previously done in Key Preparation exercises. Repeating short segments of music (one to two measures) with the accompaniment in a private lesson can be used to improve intonation as the student would most likely begin to hear the duet part in their mind during their private practice. In my experience, students approach playing the études with more confidence as they become more aware of how they could be listening better after practicing with the simple accompaniment.

When assigning an étude, before the students begin to learn it on their own, I recommend applying the Key-Centric Thinking exercise to help them hear, understand and discuss the music from a harmonic standpoint. If this introductory step is incorporated into lessons, over time teachers can expect students to come to their lesson prepared to discuss implied harmony or identify, for example, where major cadences occur in the étude they are studying. It is my desire that the analyzed music in this chapter finds a home in teachers' studios.

All of the earlier lessons are the steps and the framework for building the student's capabilities to study and enjoy learning the harmony in the four études provided. Each étude is presented with harmonic analysis and both simple and musical accompaniments. The worksheet is provided prior to each étude.

Worksheet for Fiorillo, Étude No. 3

Key Areas:
C major: mm. 1-4
G major: mm. 5-8
C major: mm. 9-10
F major: mm. 11-18
C major: mm. 19-end

Important Harmonic Events:
Recapitulating Cadence: m. 19-20
Important Key Changes:
mm. 5-8 to G major
mm. 11-12 to F major
mm. 19-20 to C major

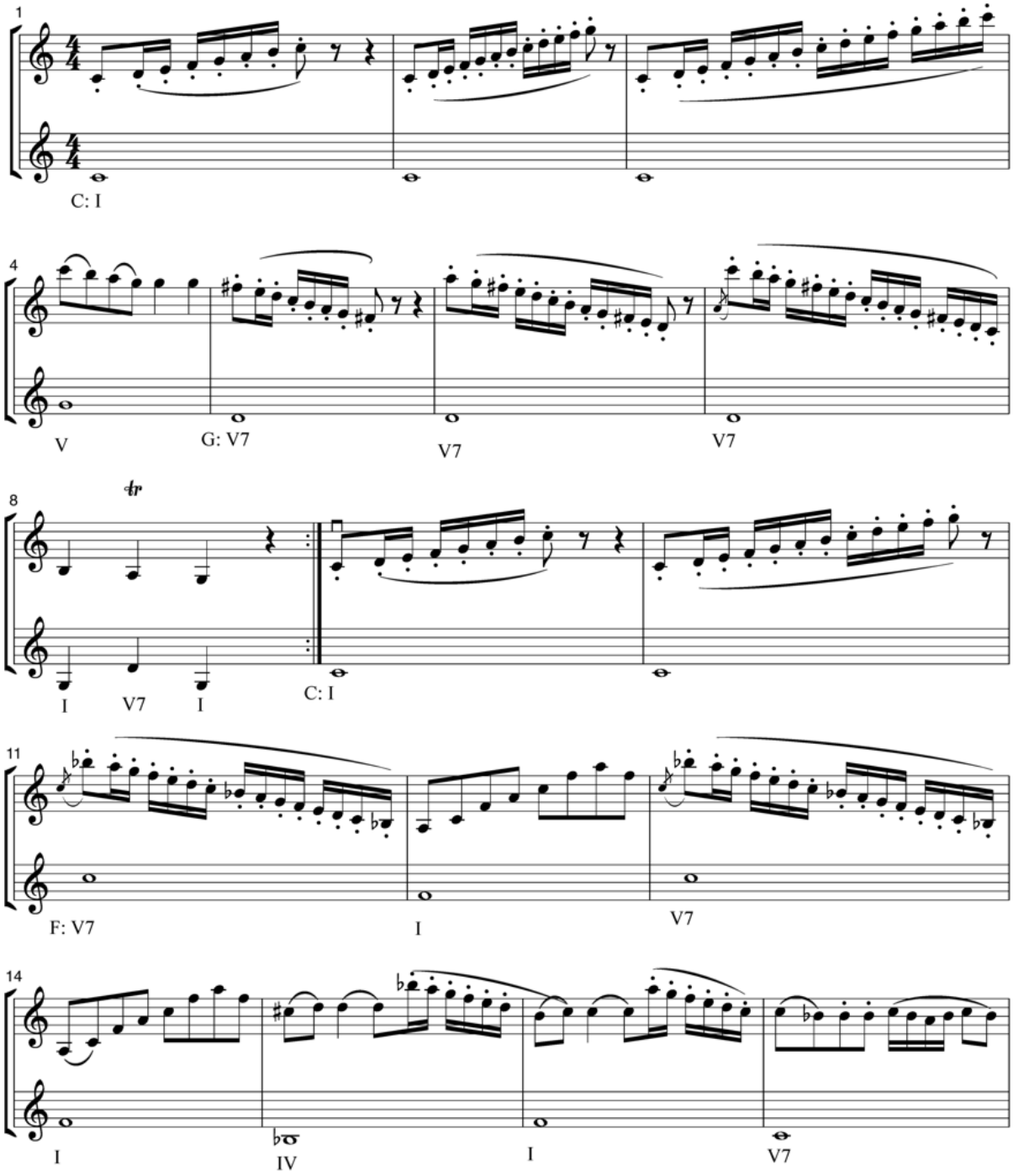
Other:
Accented lower-neighbor tones in mm 15 and 16: C-sharp and B-natural.
The Cadential I 6/4 chord in measure 22 and 27.

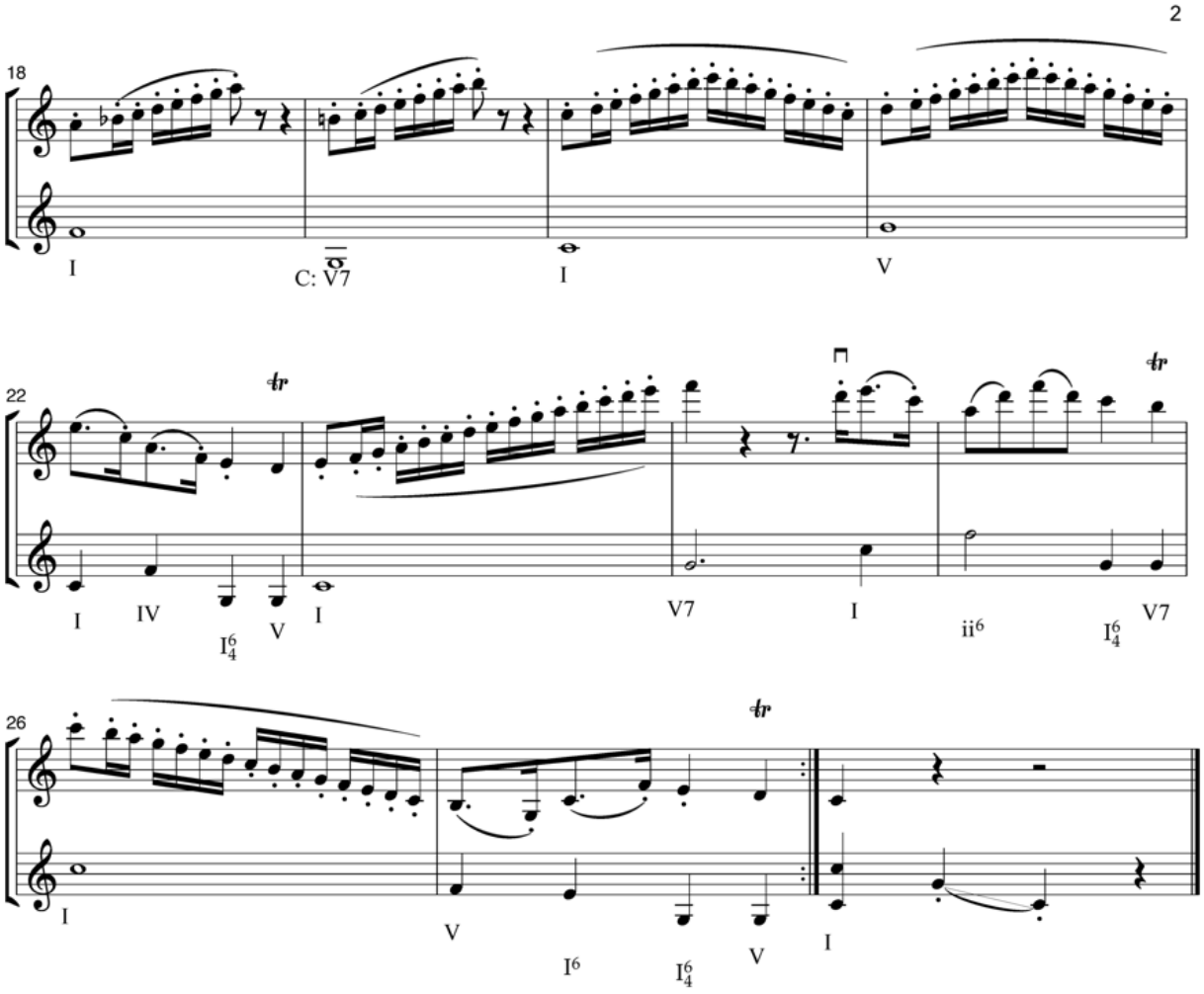
1

Fiorillo Étude No. 3 (Simple)

Simple Accompaniment

F. Fiorillo, P. Amirinazari



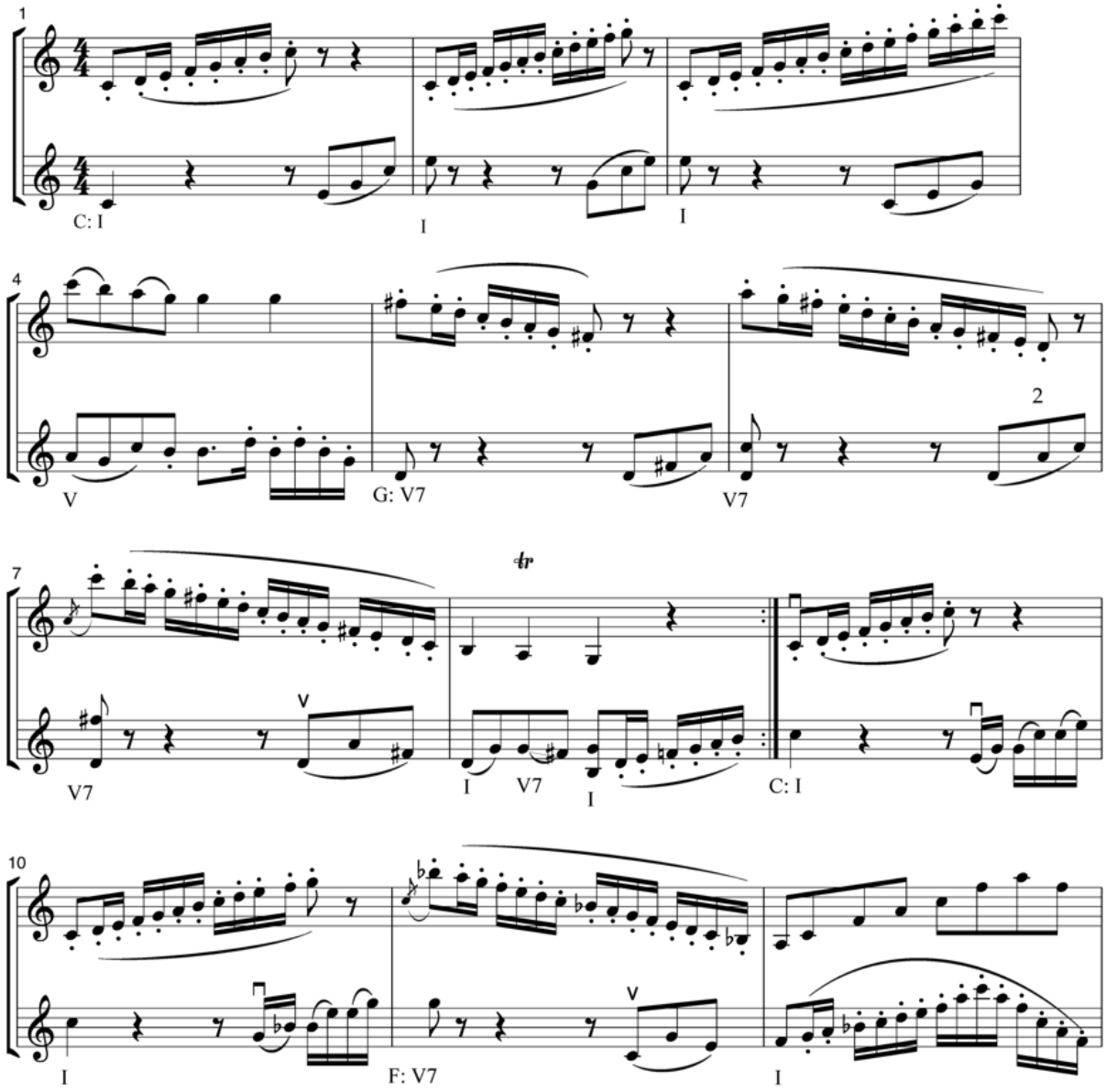

2
18
I
C: V7
I
V
22
I
IV
I6 4
V
I
V7
I
ii6
I6 4
V7
26
I
V
I6
I6 4
V
I

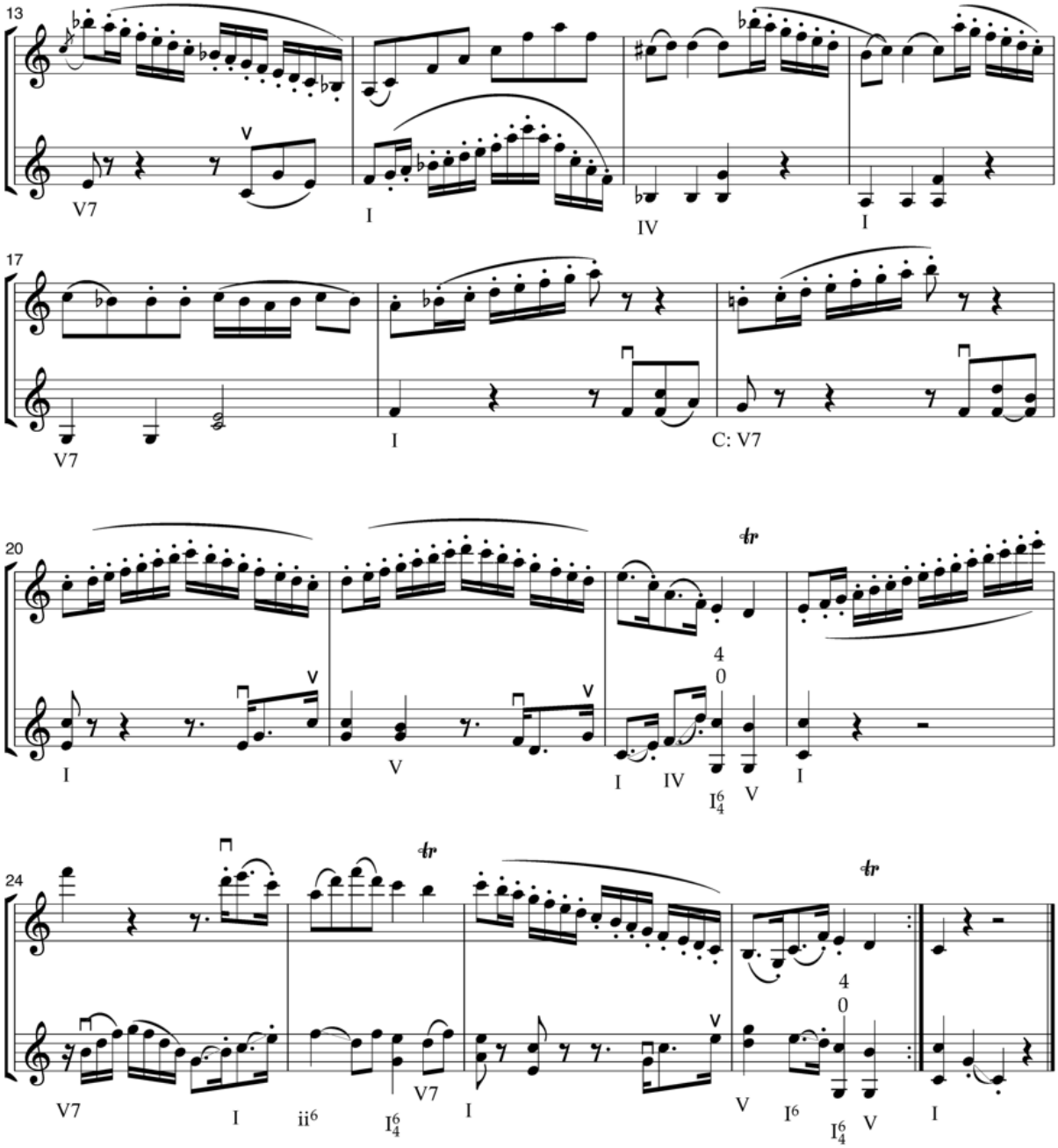
1

Fiorillo Étude No. 3

Musical Accompaniment

F. Fiorillo, L. Spohr/P. Amirinazari




13
V7
I
IV
I
17
V7
I
C: V7
20
I
V
I
IV
V
I
24
V7
I
ii6
V7
I
V
I6
V
I

Worksheet for Kreutzer, Étude No. 10

Key Areas:
G major: mm. 1-11
G minor: mm. 12-17
B flat major: mm. 18-21
G minor: mm. 22-27
G major: mm. 28-end

Important Key Changes:
mm. 11-12 to G minor
mm. 16-18 to B flat major
mm. 20-22 to G minor
mm. 27-28 to G major

Other:

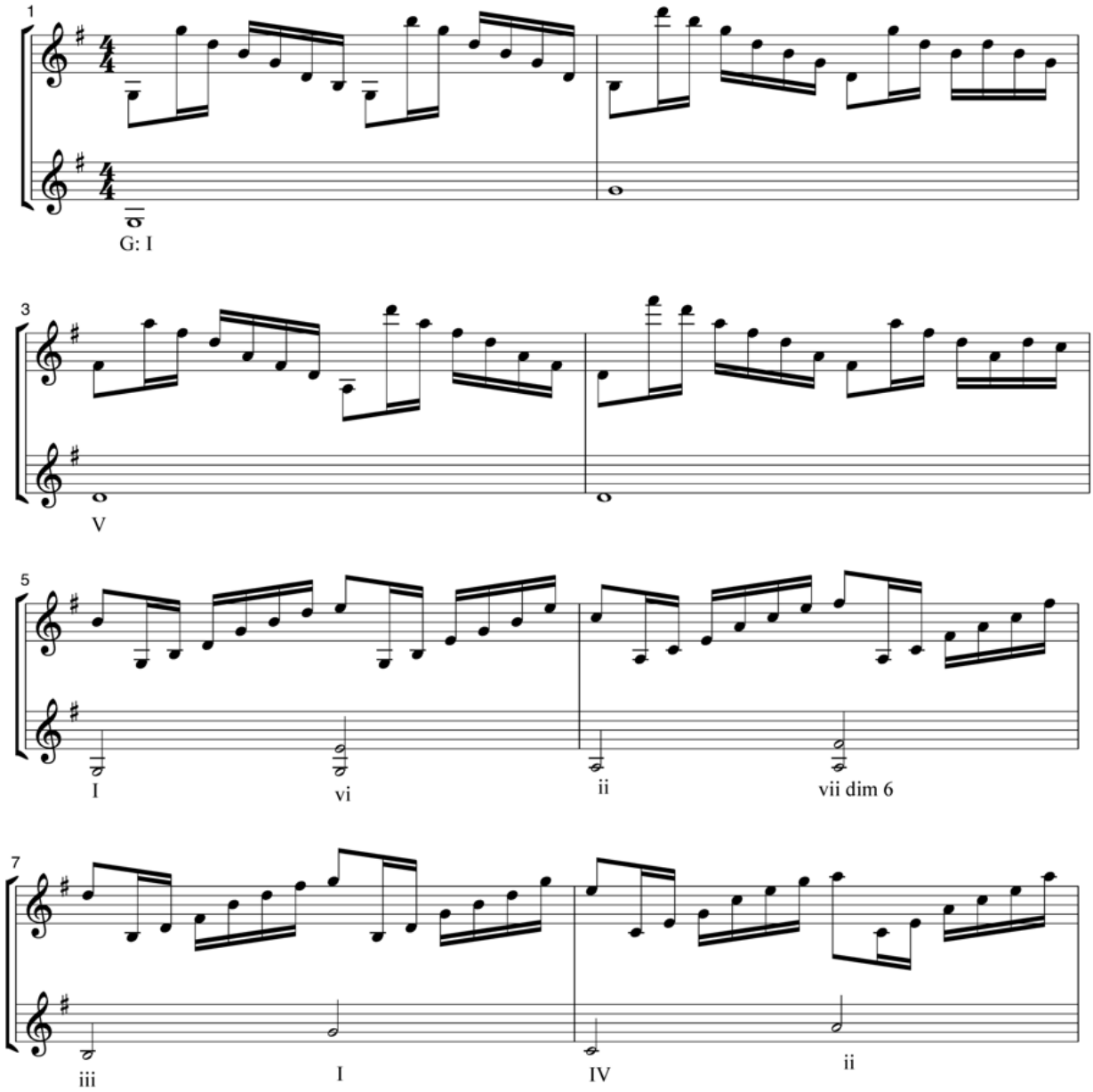
Tonicization of D major in mm. 9-10.
Tonicization of B-flat major in mm. 15-17.
Tonicization of E-flat major in mm. 25-27.

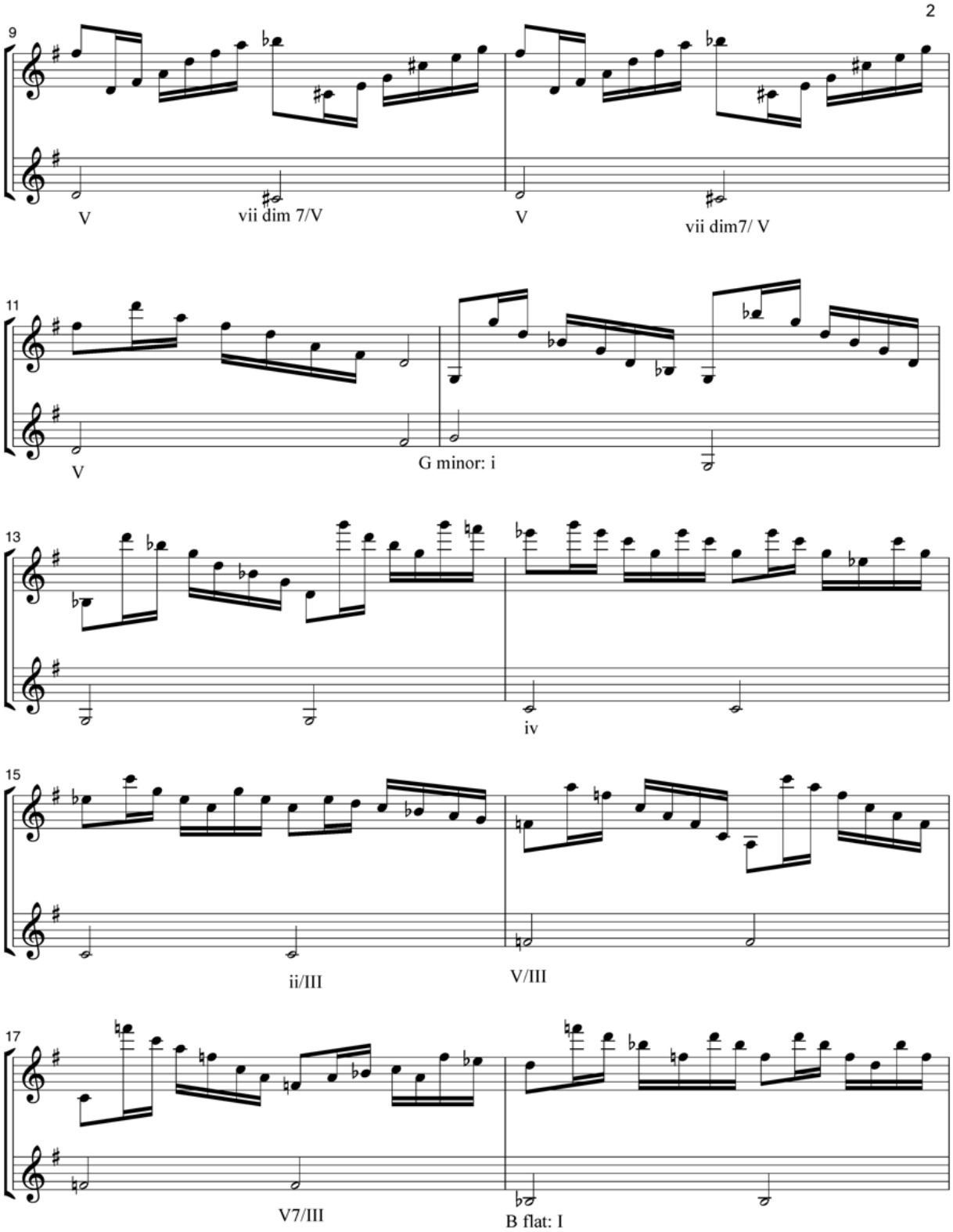
1

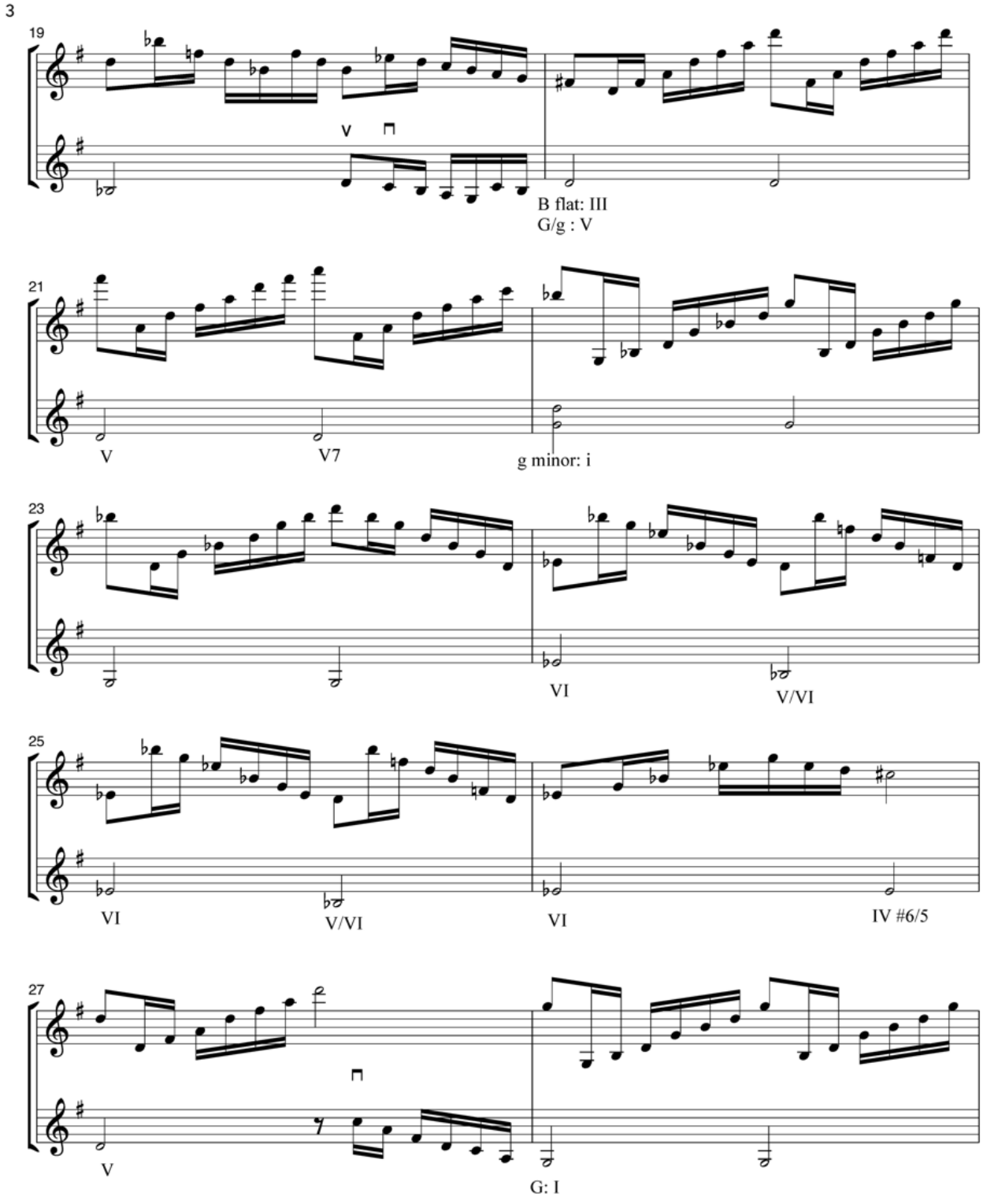
Kreutzer Étude No. 10 (Simple)

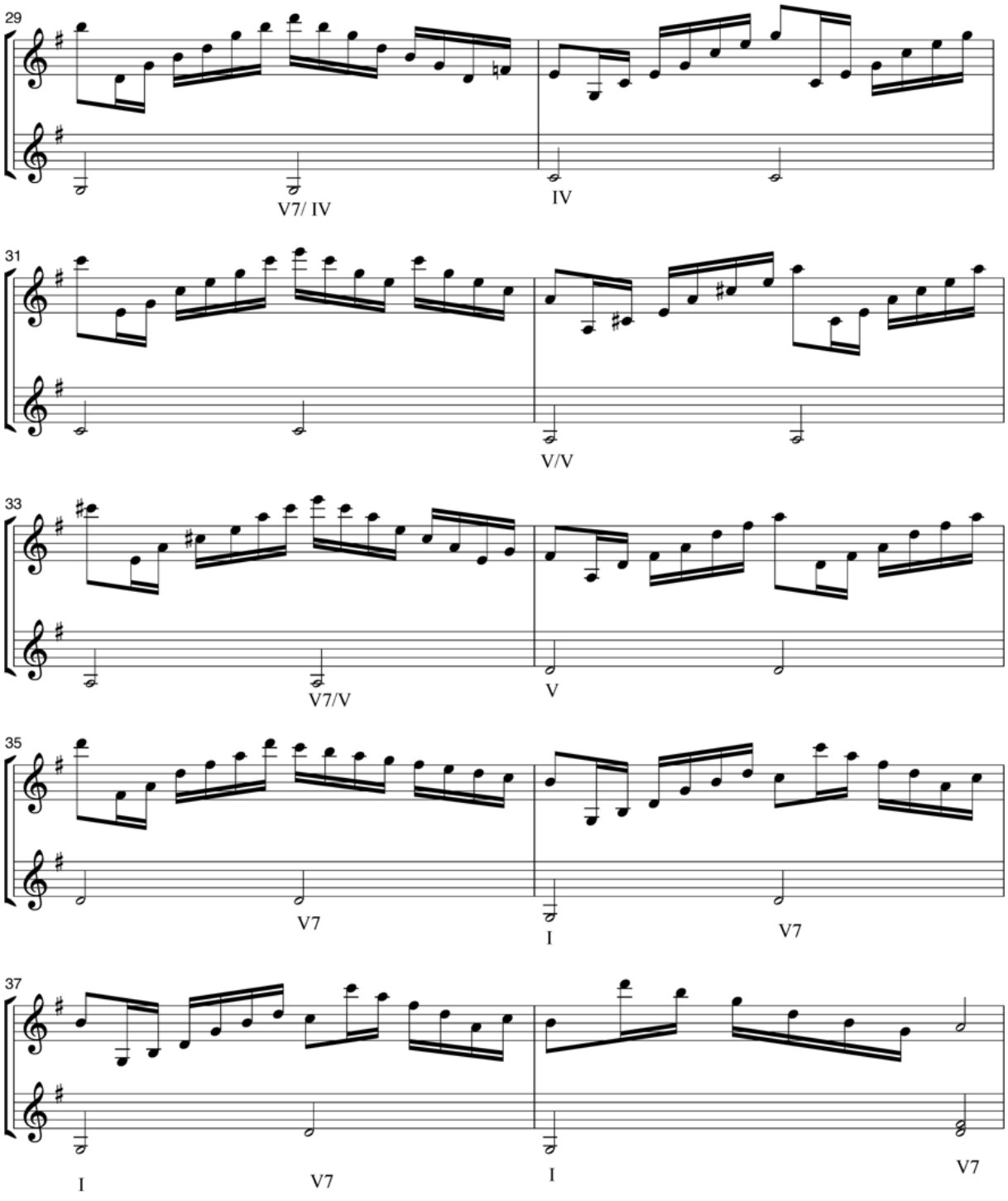
Simple Accompaniment

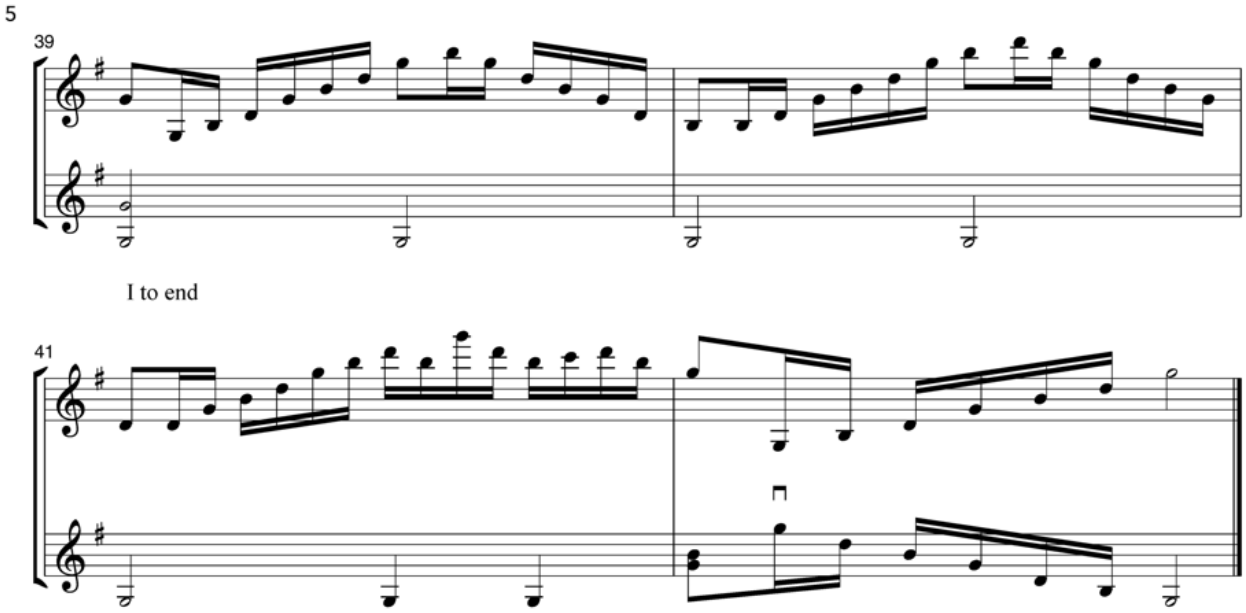
R. Kreutzer, P. Amirinazari




2
9
V
vii dim 7/V
V
vii dim7/ V
11
V
G minor: i
13
iv
15
ii/III
V/III
17
V7/III
B flat: I


3
19
V
B flat: III
G/g : V
21
V
V7
g minor: i
23
VI
V/VI
25
VI
V/VI
VI
IV #6/5
27
V
G: I


29
V7/ IV
IV
31
V/V
33
V7/V
V
35
V7
I
V7
37
I
V7
I
V7

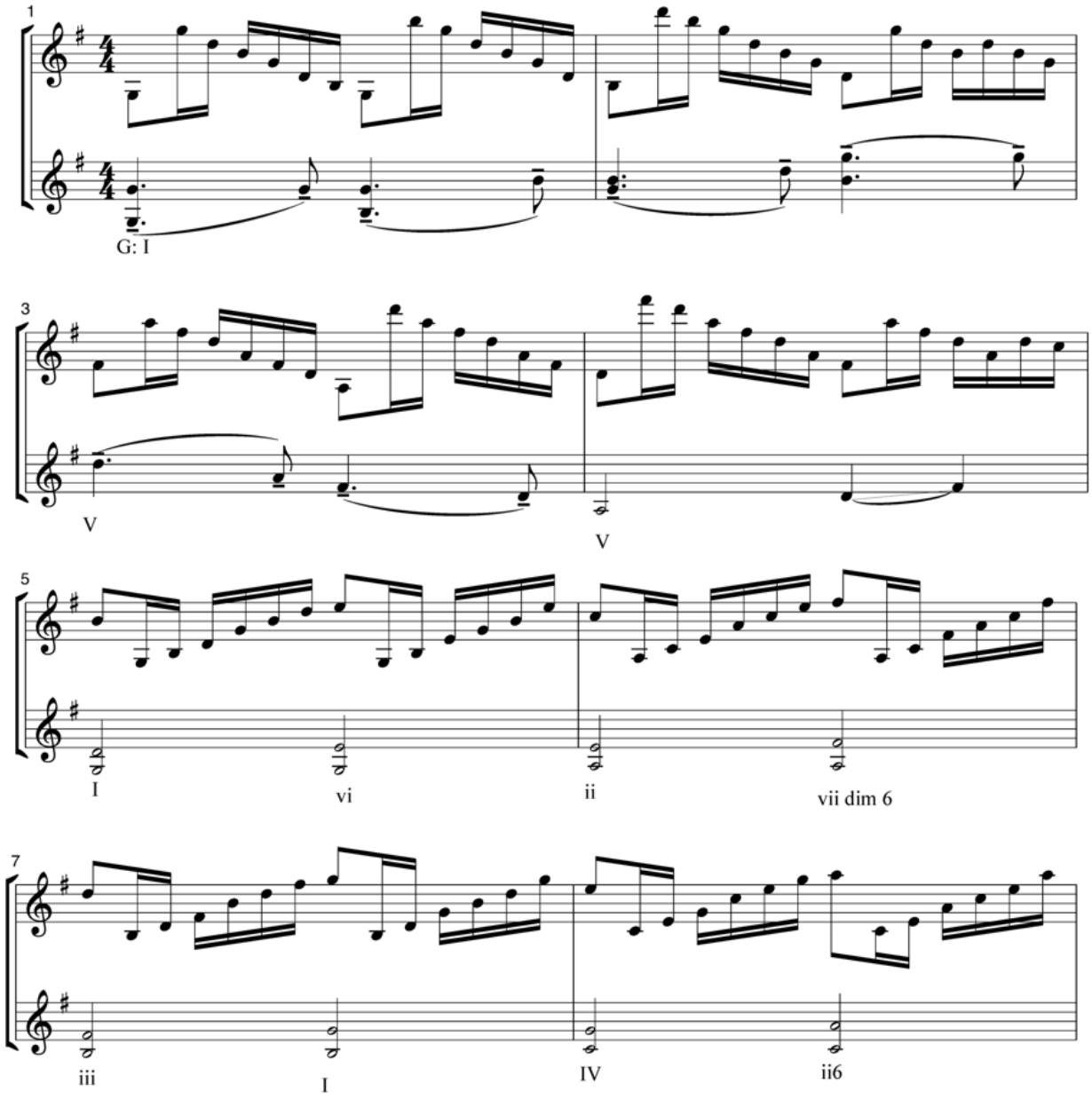

5
39
I to end
41

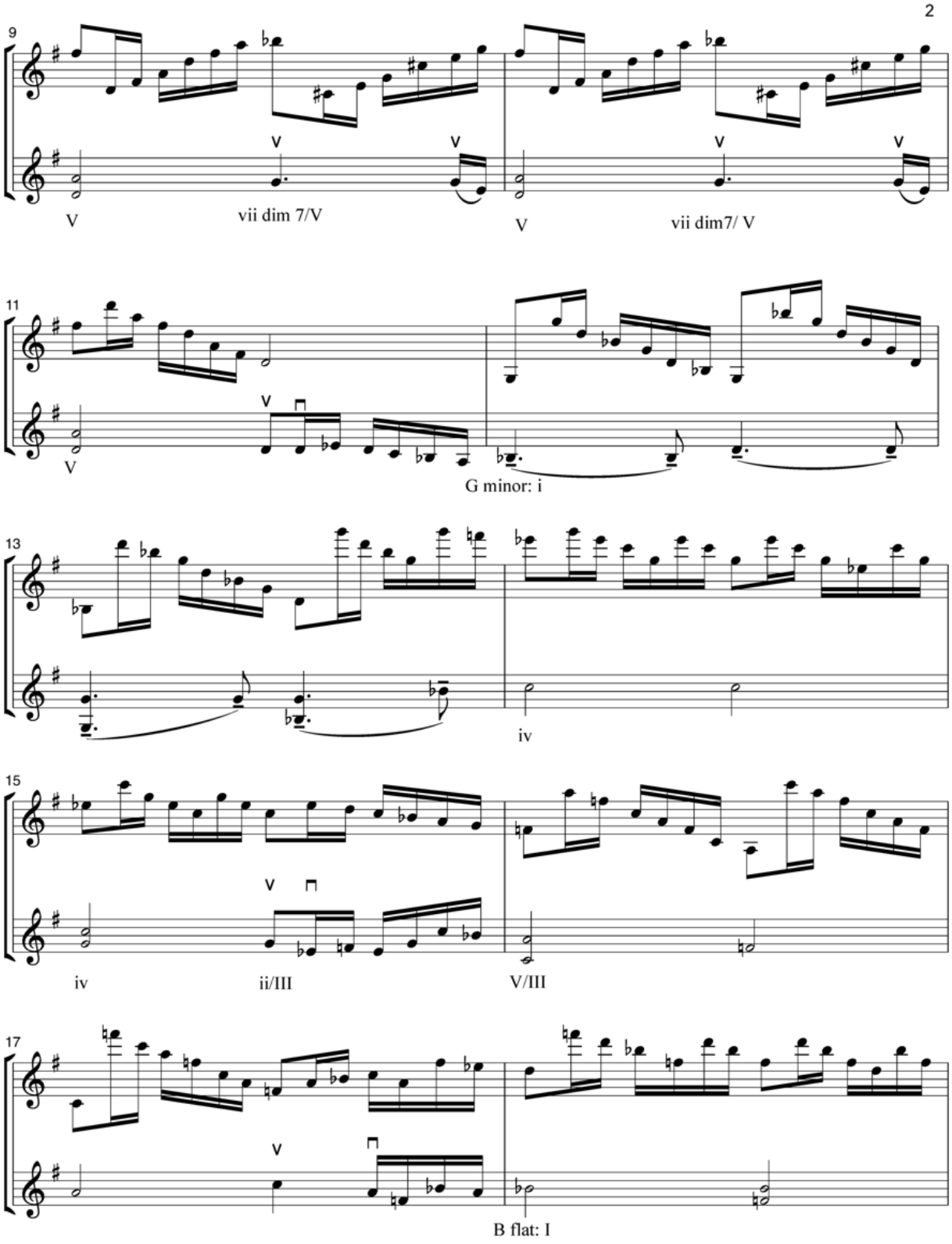
1

Kreutzer Étude No. 10

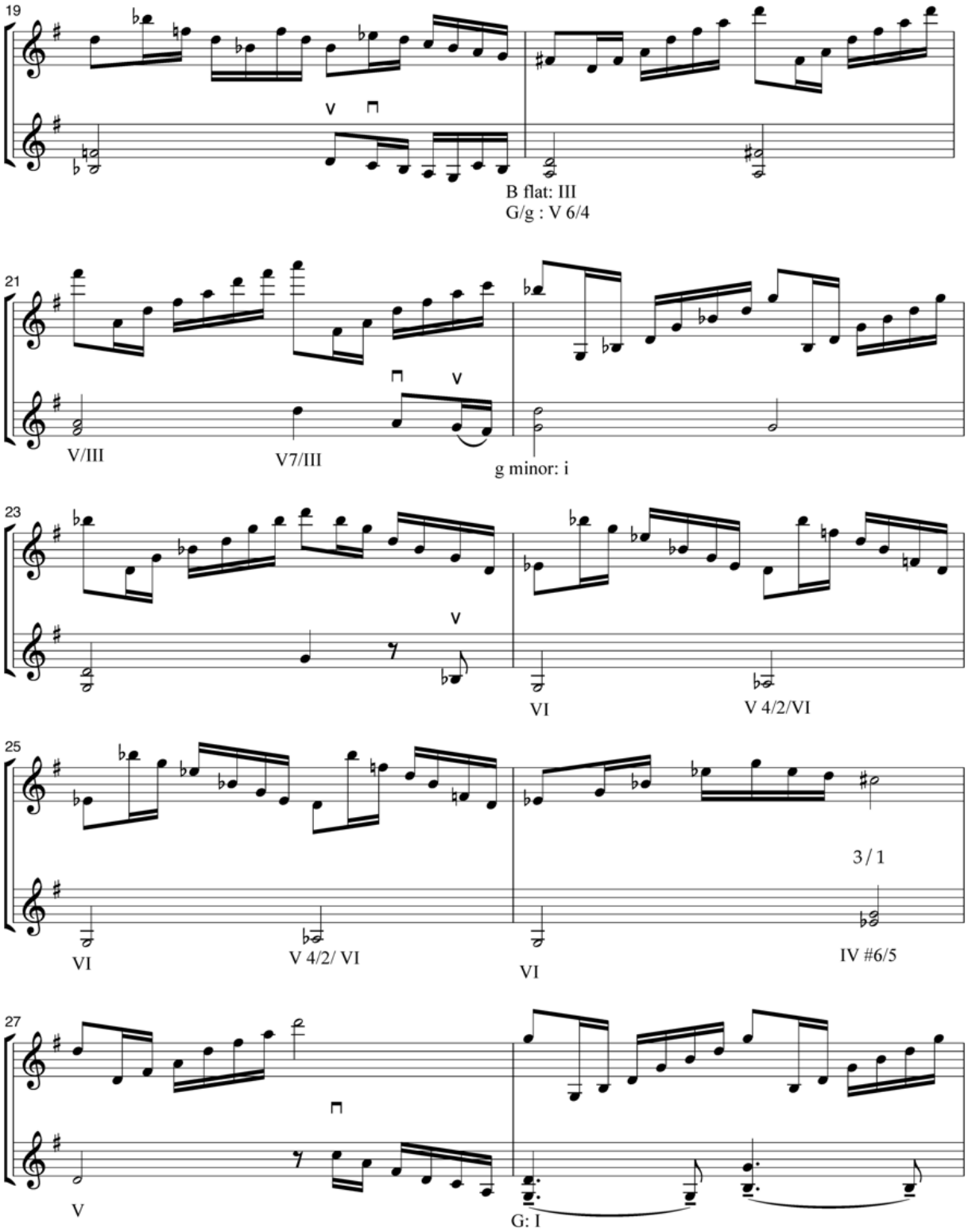
Musical Accompaniment

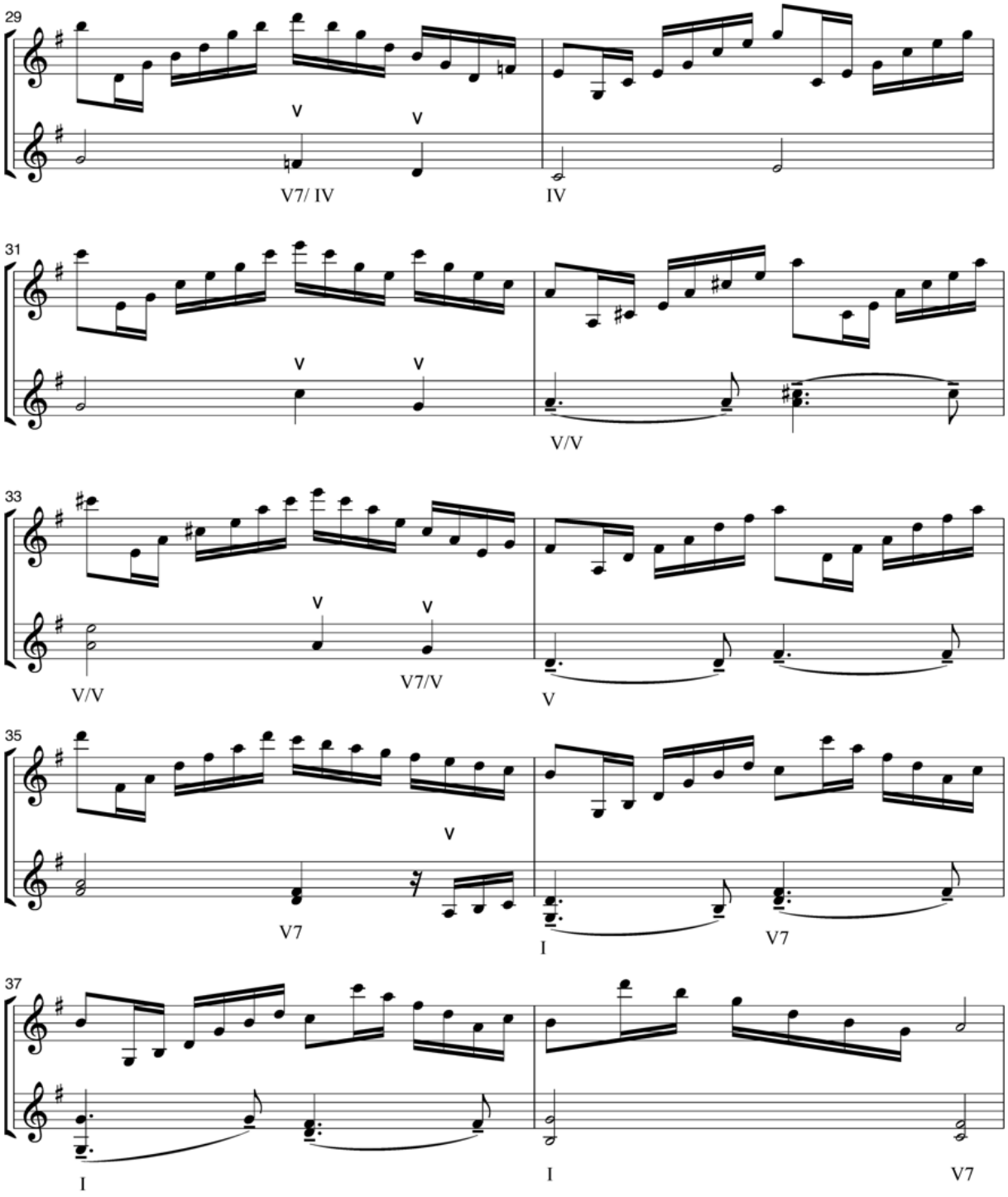
R. Kreutzer, P. Amirinazari

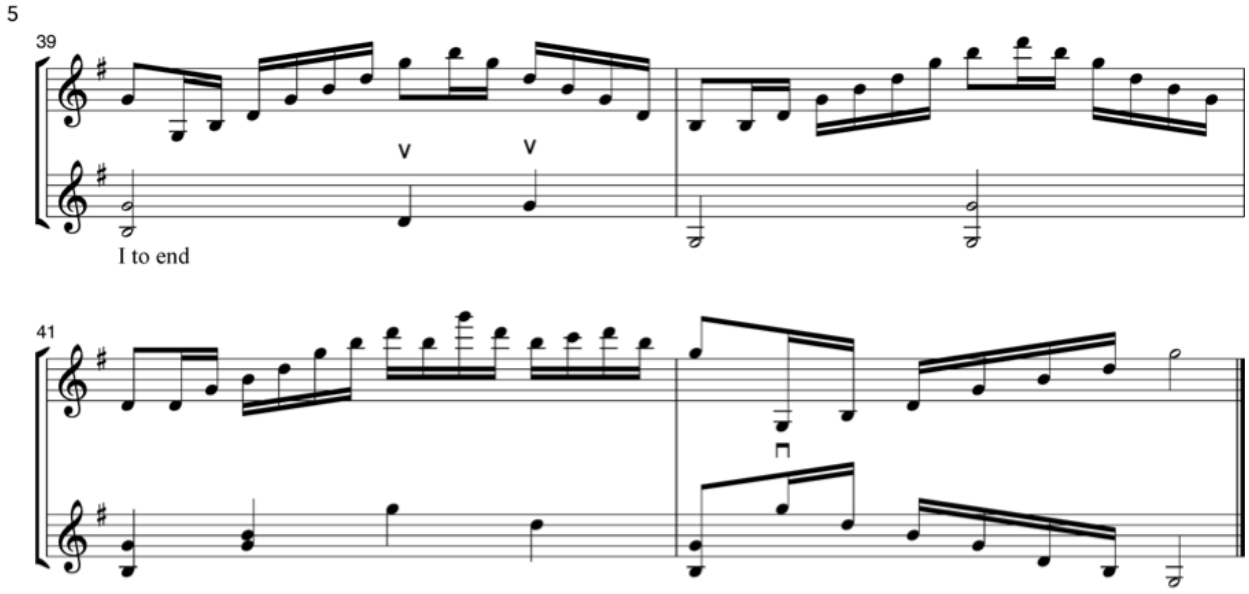



2
9
V
vii dim 7/V
V
vii dim7/ V
11
V
G minor: i
13
iv
15
iv
ii/III
V/III
17
B flat: I

3


19
B flat: III
G/g : V 6/4
21
V/III
V7/III
g minor: i
23
VI
V 4/2/VI
25
VI
V 4/2/ VI
VI
3 / 1
IV #6/5
27
V
G: I


29
V7/ IV
IV
31
V/V
33
V/V
V7/V
V
35
V7
I
V7
37
I
I
V7


5
39
V
V
I to end
41

Worksheet for Dont Op. 37, Étude No. 6

Key Areas:
D major: mm. 1-10
A major: mm.11-24
B minor: mm. 25-26
A major: mm. 27-38
D major: mm. 39 to End

Important Harmonic Events:
Recapitulating Cadence:
mm. 38-39: to D major
Important Key Changes:
mm. 12-13: to A major
mm. 28-31: dominant pedal to A major

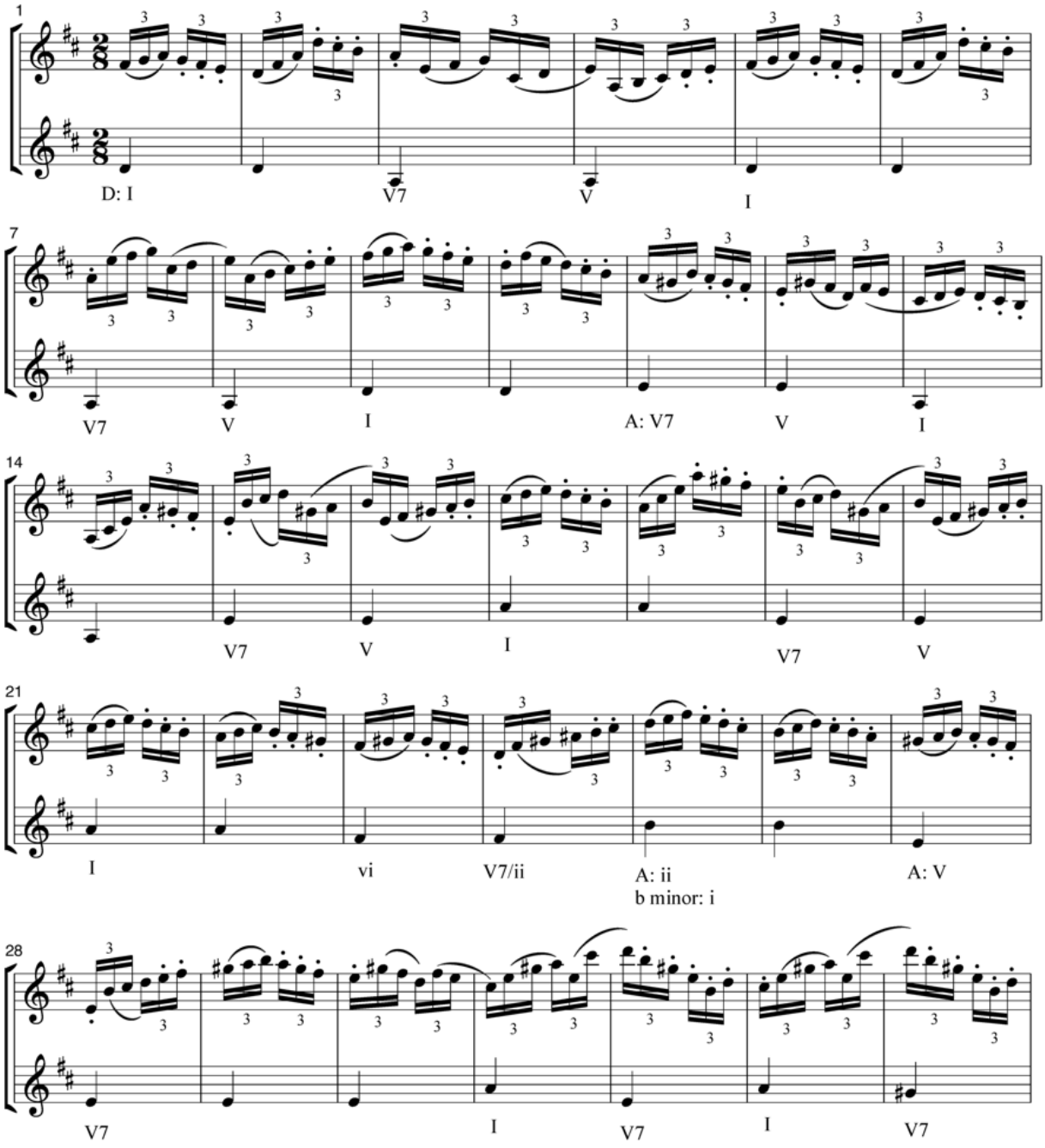
Other:
The ii7 in m. 57 prepares the dominant-seventh chord in m. 58.

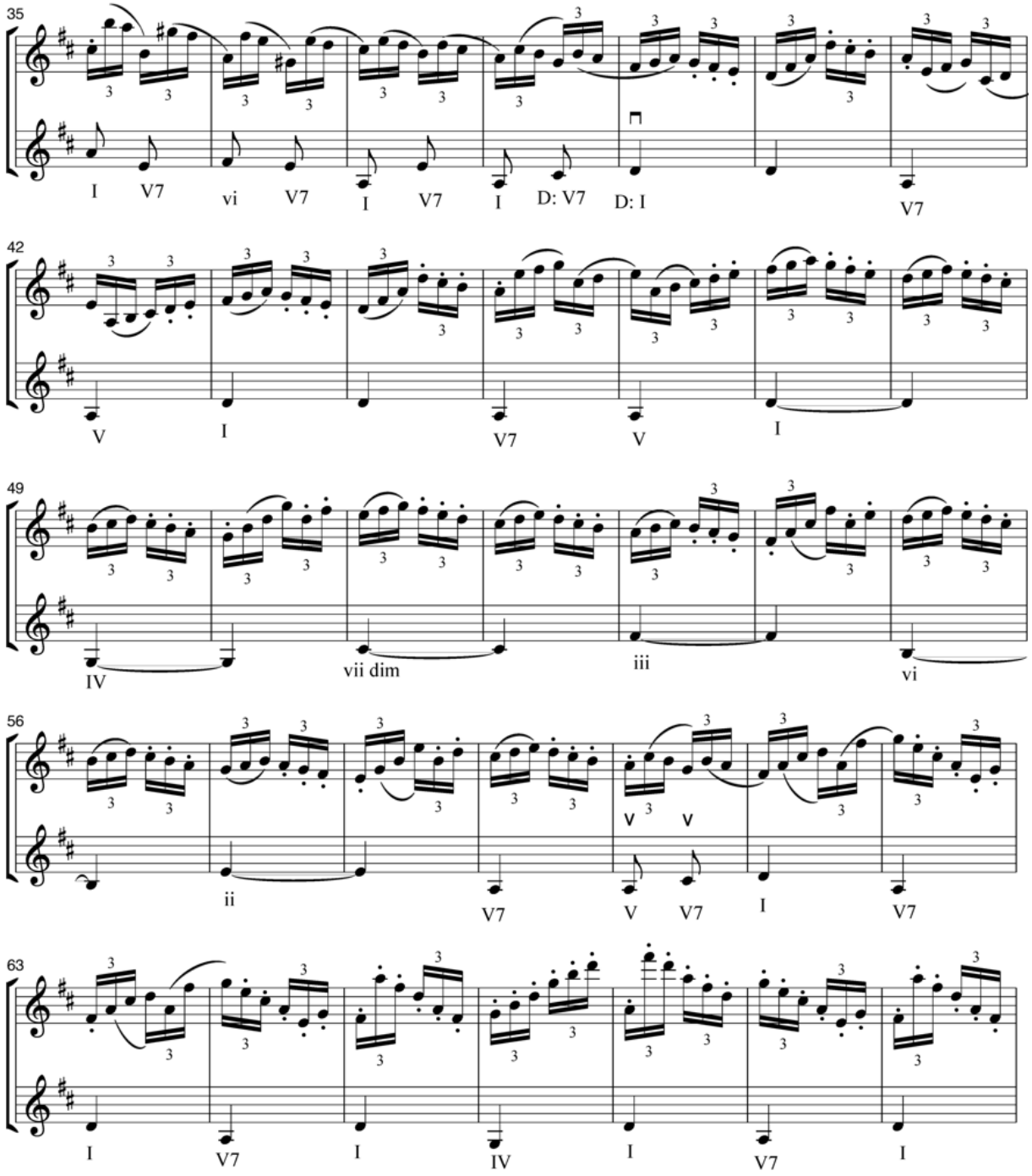
1

Dont Op. 37, Étude No. 6 (Simple)

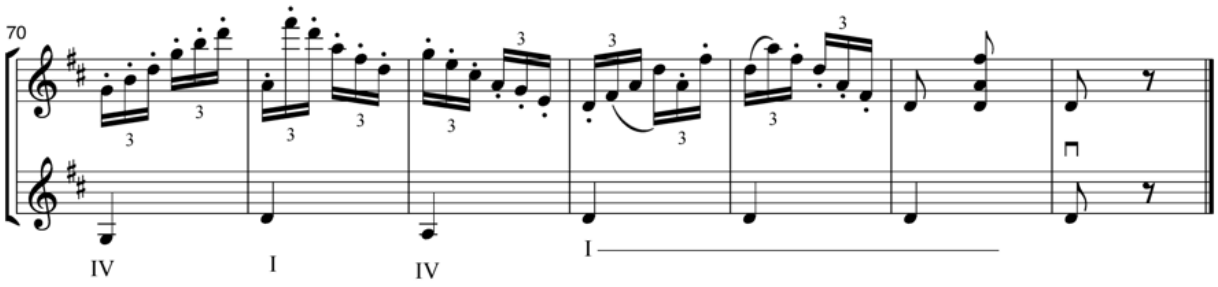
J. Dont, P. Amirinazari

Simple Accompaniment




35
I V7 vi V7 I V7 I D: V7 D: I V7
42
V I V7 V I
49
IV vii dim iii vi
56
ii V7 V V7 I V7
63
I V7 I IV I V7 I

3

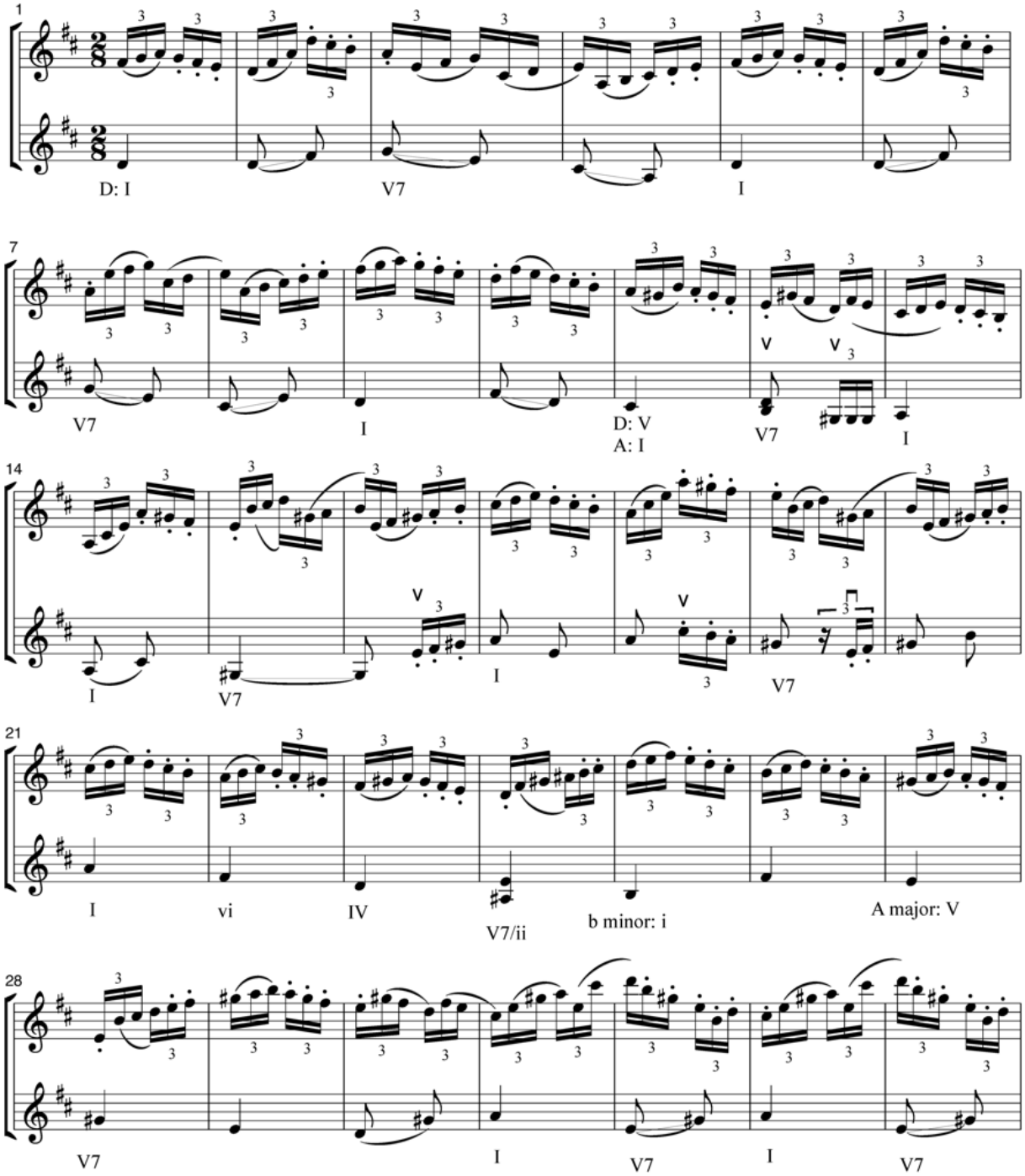


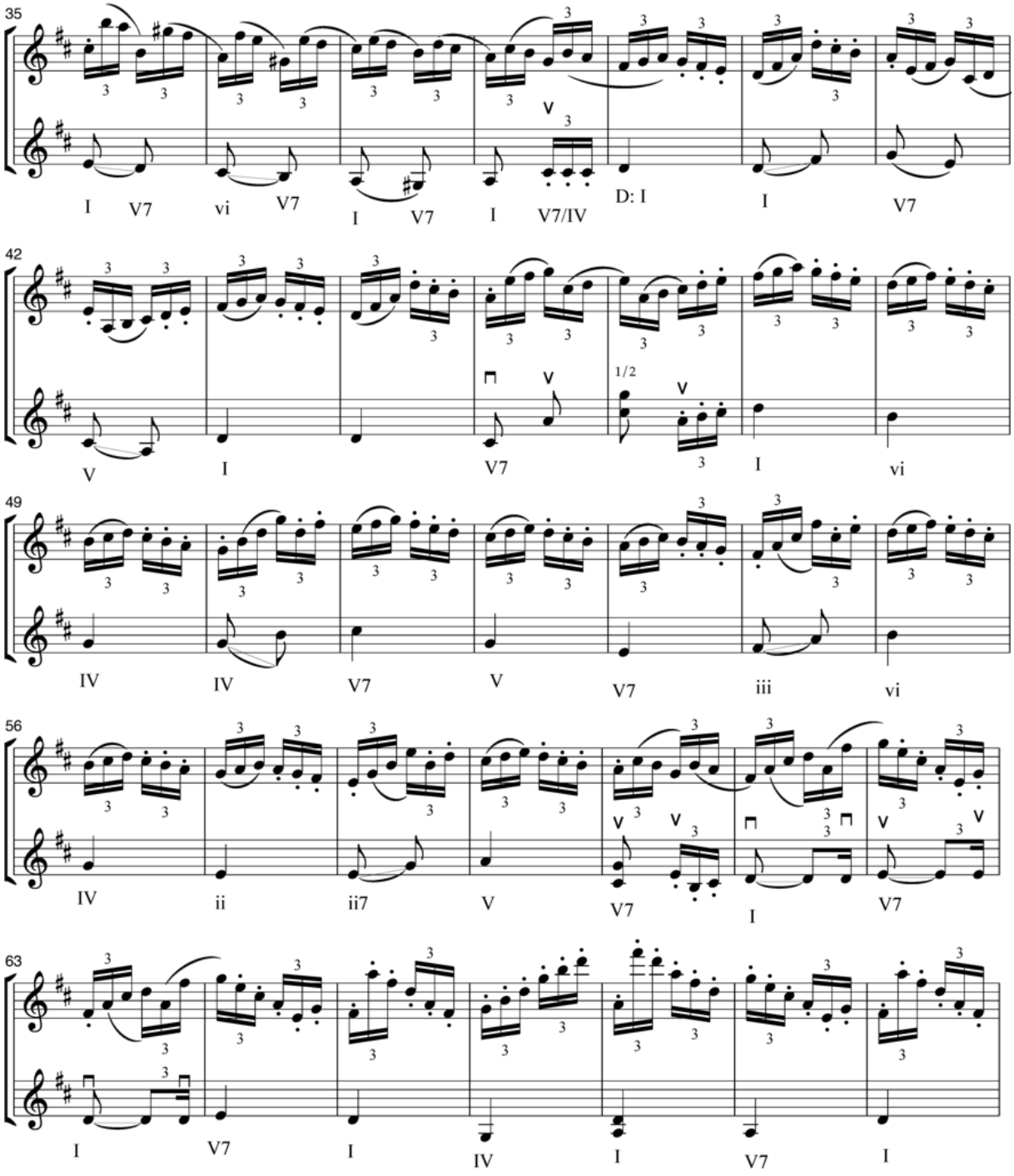
1

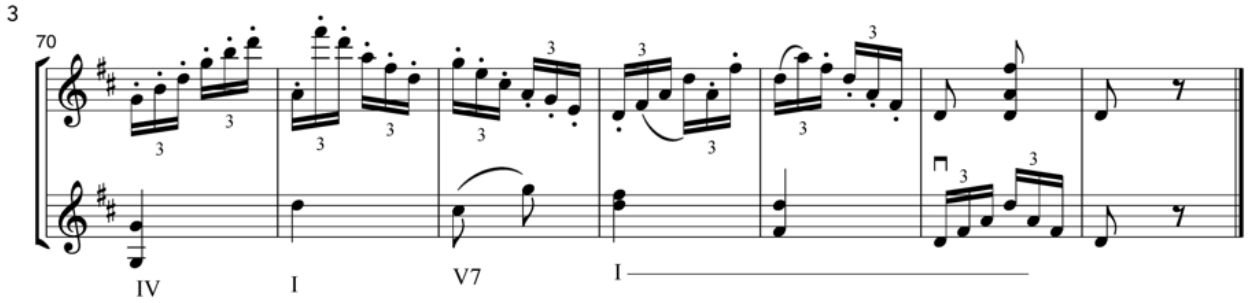
Dont Op. 37, Étude No. 6

Musical Accompaniment

J. Dont, P. Amirinazari




35
I V7 vi V7 I V7 I V7/IV D: I I V7
42
V I V7 1/2 I vi
49
IV IV V7 V V7 iii vi
56
IV ii ii7 V V7 I V7
63
I V7 I IV I V7 I


3
70
IV
I
V7
I

Worksheet for Kreutzer, Étude No. 8

Key Areas:
E major: mm. 1-5
B major: mm. 6-7
E major: mm. 8-19
E minor: mm. 20-21
G major: mm. 22-31
E minor: mm. 32-38
E major: mm. 39-43
B major: m. 44
E major: mm. 45 to end

Important Harmonic Events:
Recapitulating Cadence: m. 39
Important Key Changes:
- mm. 8-9: to B major
- mm. 19-20: E minor
- mm. 22-23: to G major
- mm. 37-39: dominant pedal returning to E

Other:

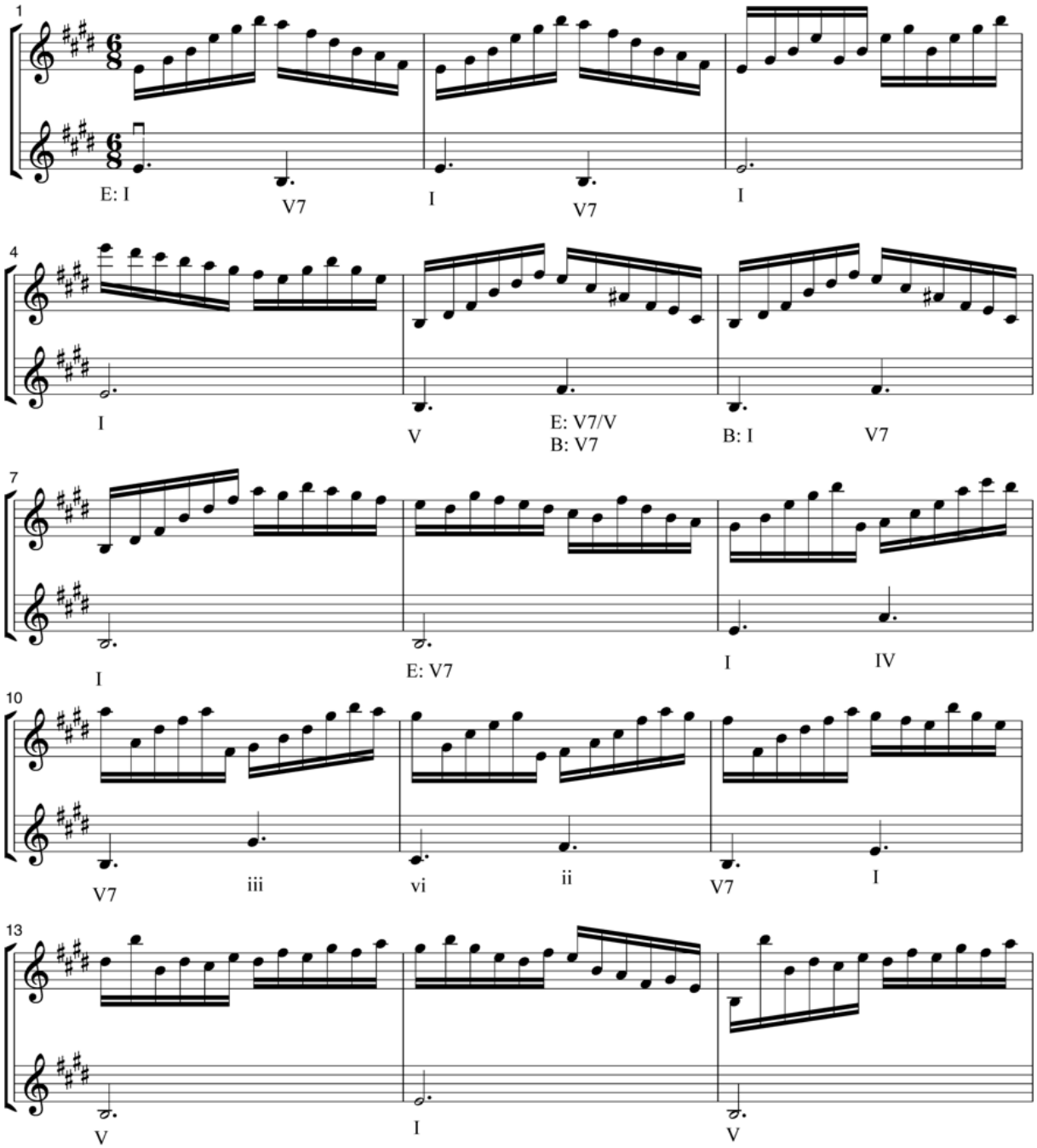
Use of the parallel minor, from E major to E minor, in measure 20.
Augmented 6^{th} chord in measures 34, 35, and 36.

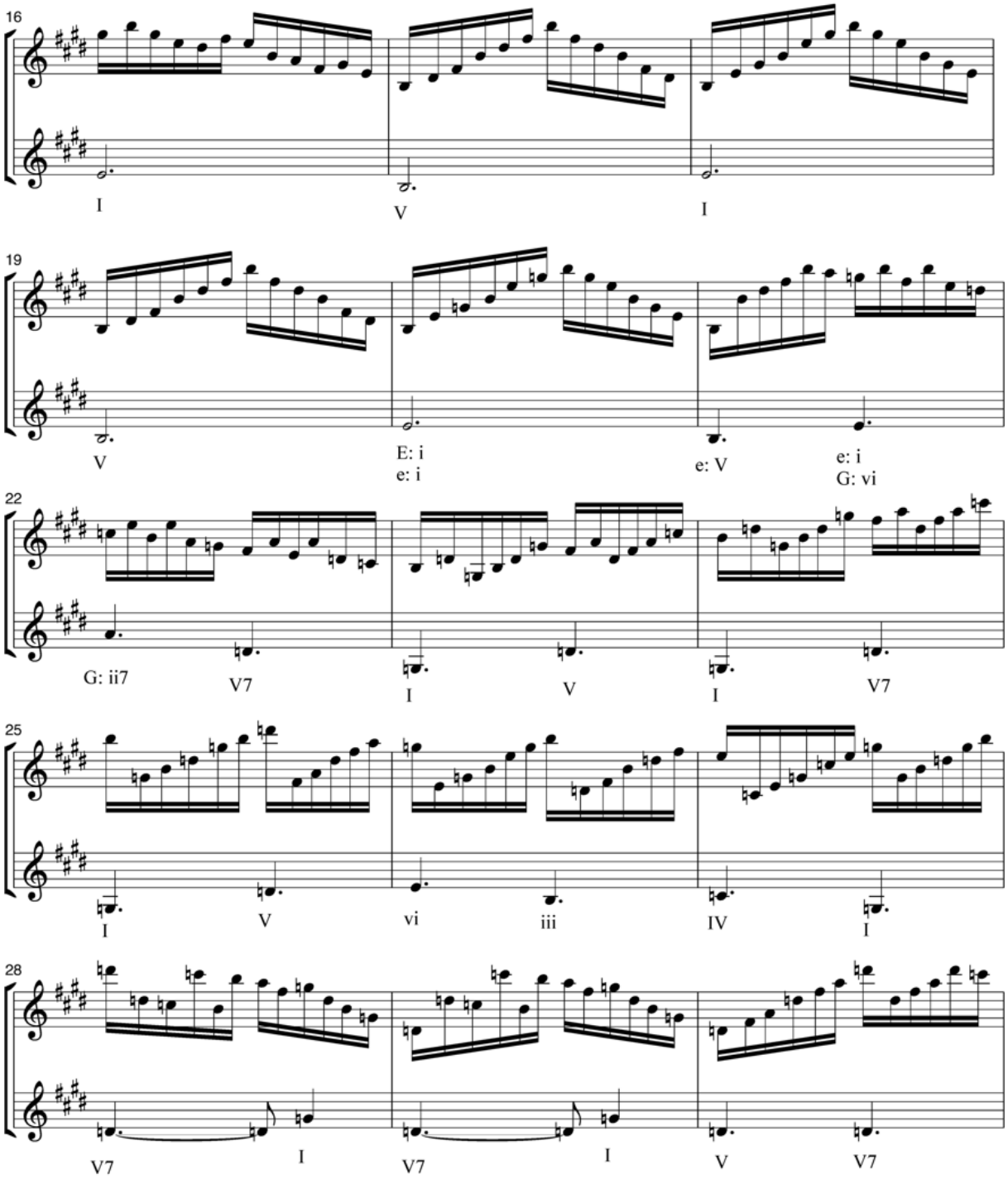
1

Kreutzer Étude No. 8 (Simple)

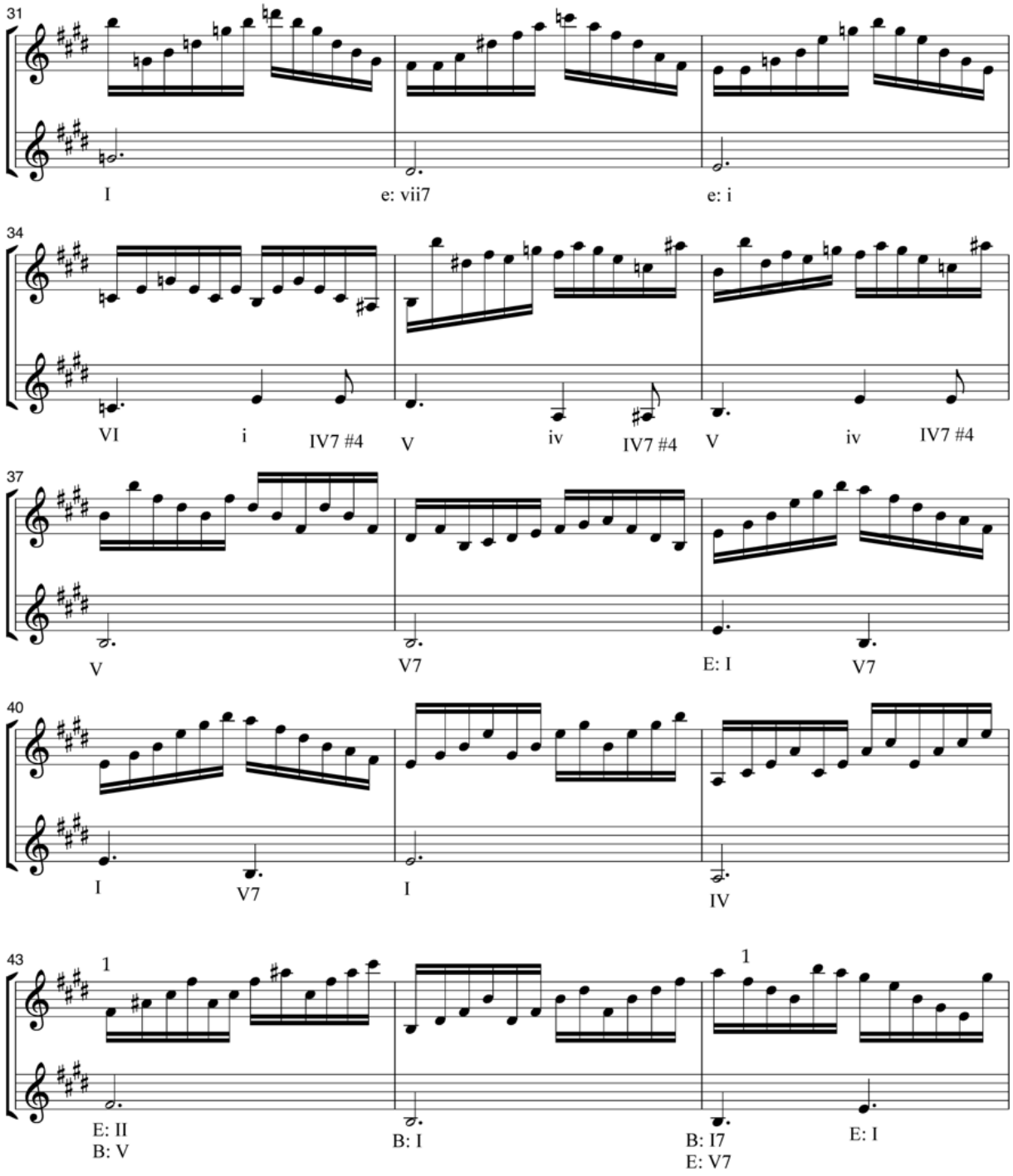
Simple Accompaniment

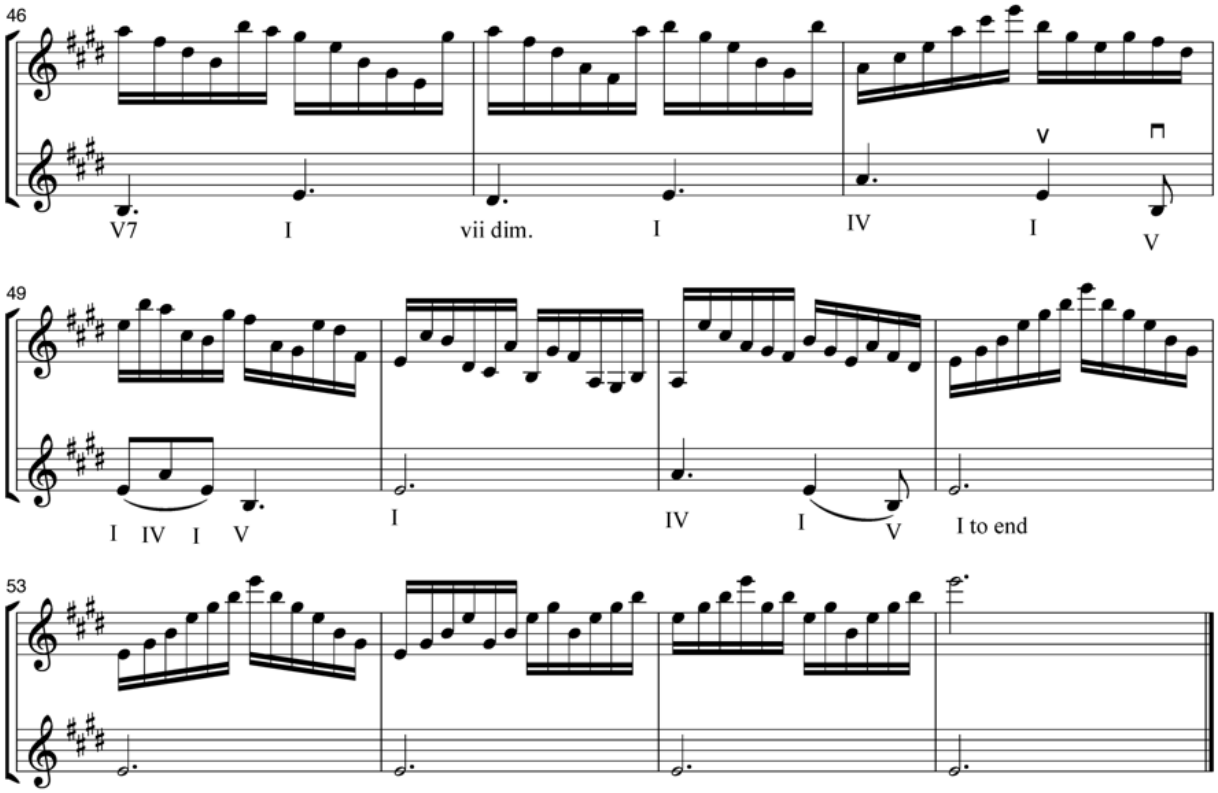
R. Kreutzer, P. Amirinazari




16
I
V
I
19
V
E: i
e: i
e: V
e: i
G: vi
22
G: ii7
V7
I
V
I
V7
25
I
V
vi
iii
IV
I
28
V7
I
V7
I
V
V7

3


31
I
e: vii7
e: i
34
VI
i
IV7 #4
V
iv
IV7 #4
V
iv
IV7 #4
37
V
V7
E: I
V7
40
I
V7
I
IV
43
1
E: II
B: V
B: I
1
B: I7
E: V7
E: I

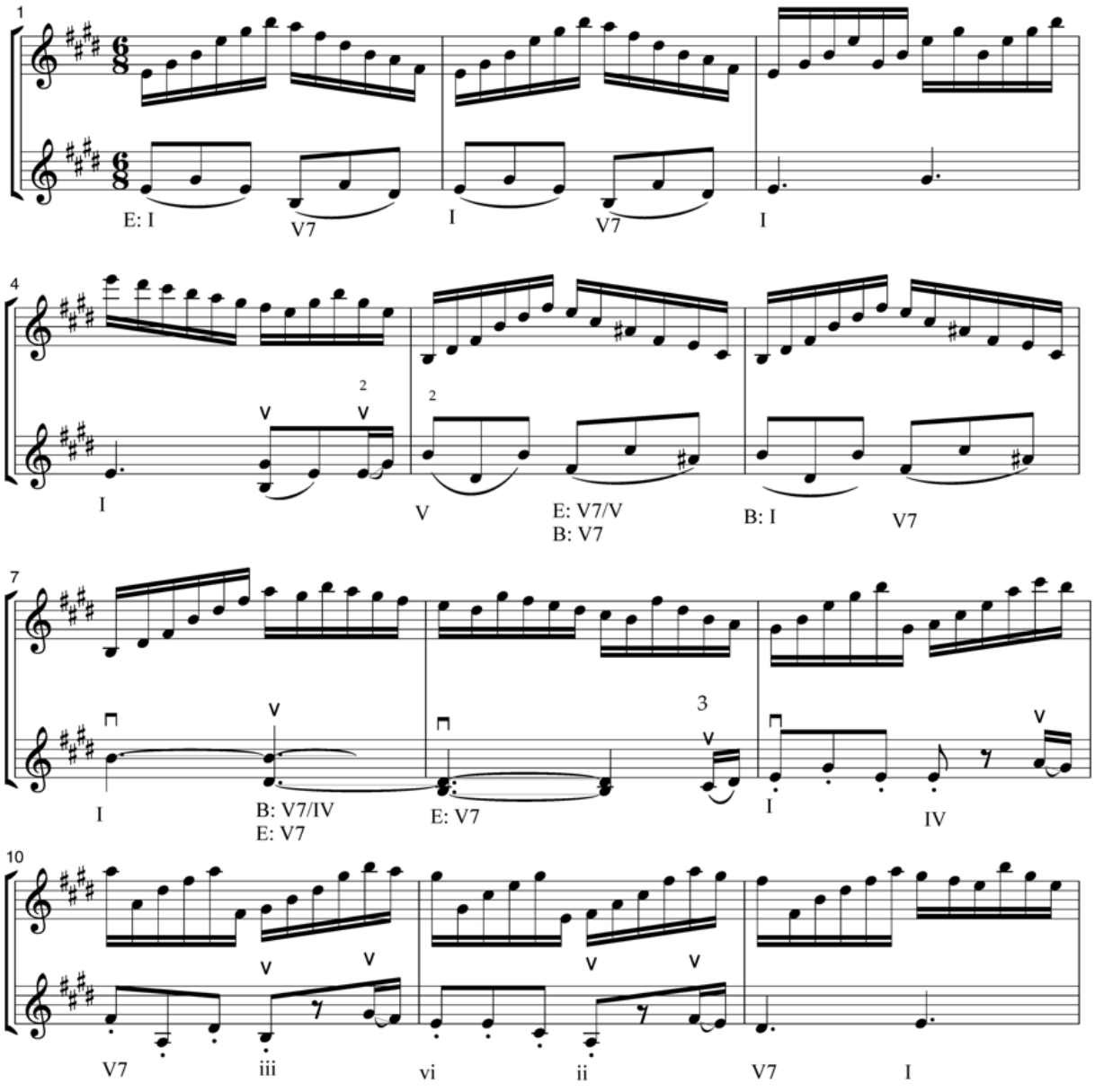

46
V7
I
vii dim.
I
IV
I
V
49
I IV I V
I
IV
I
V
I to end
53

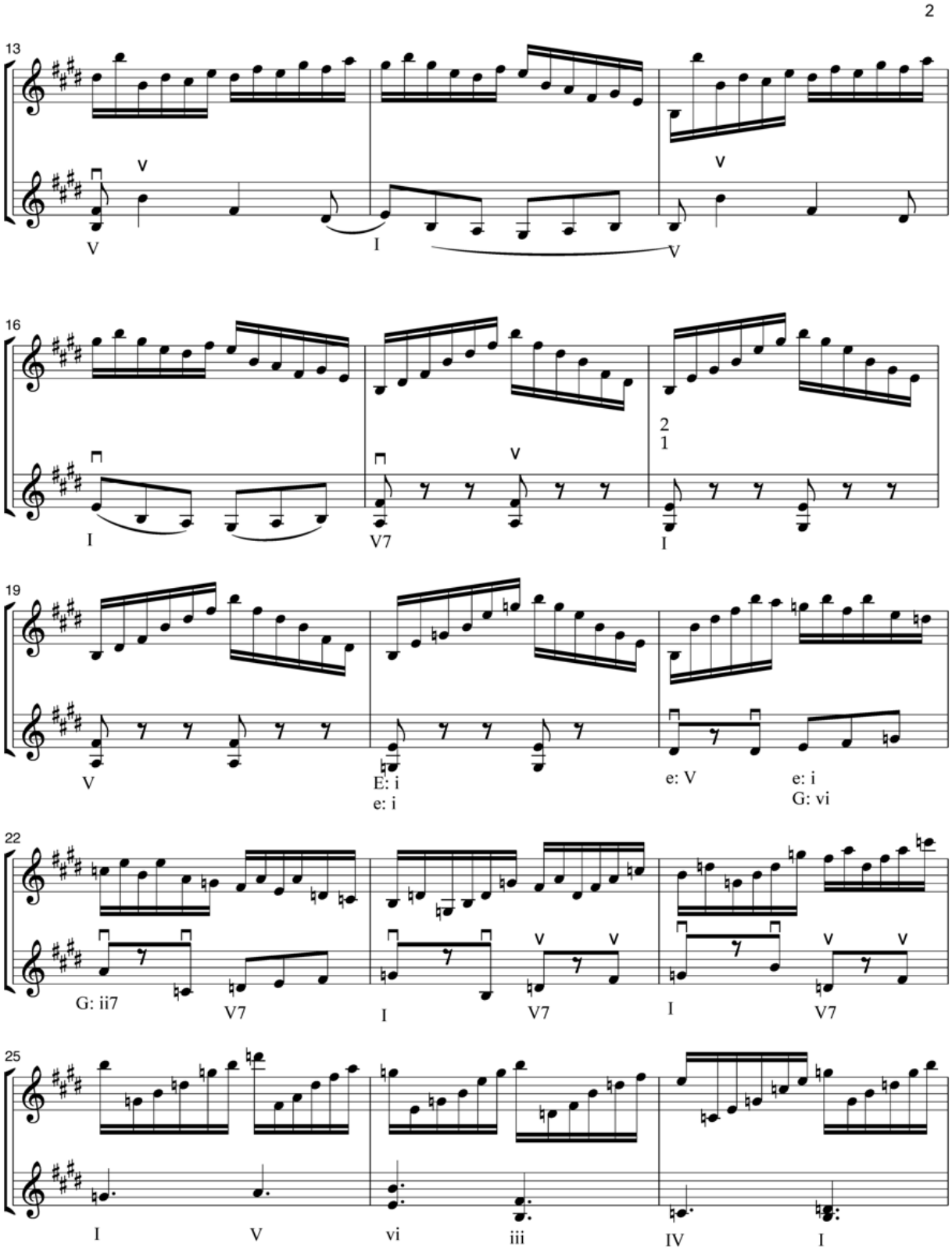
1

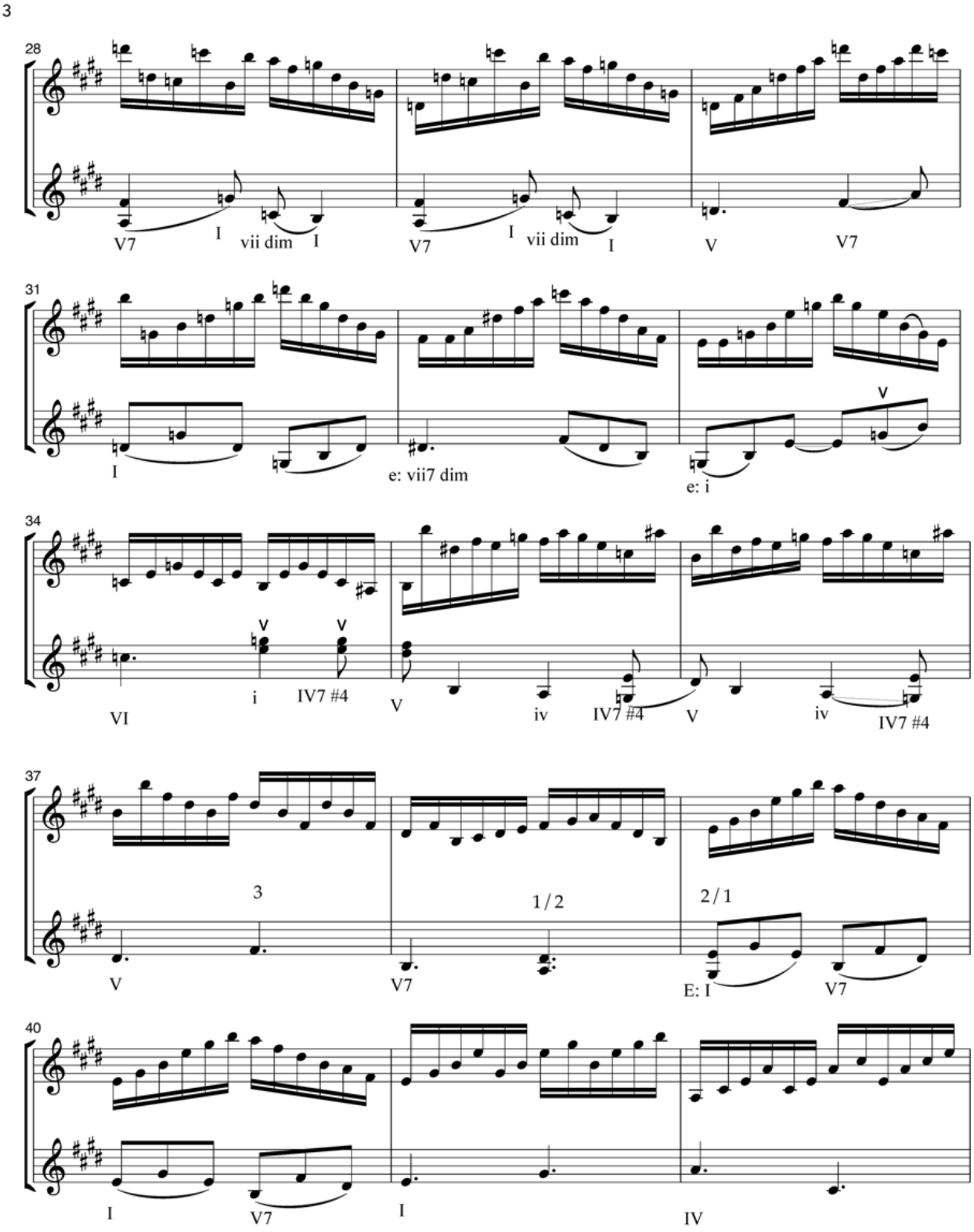
Kreutzer Étude No. 8

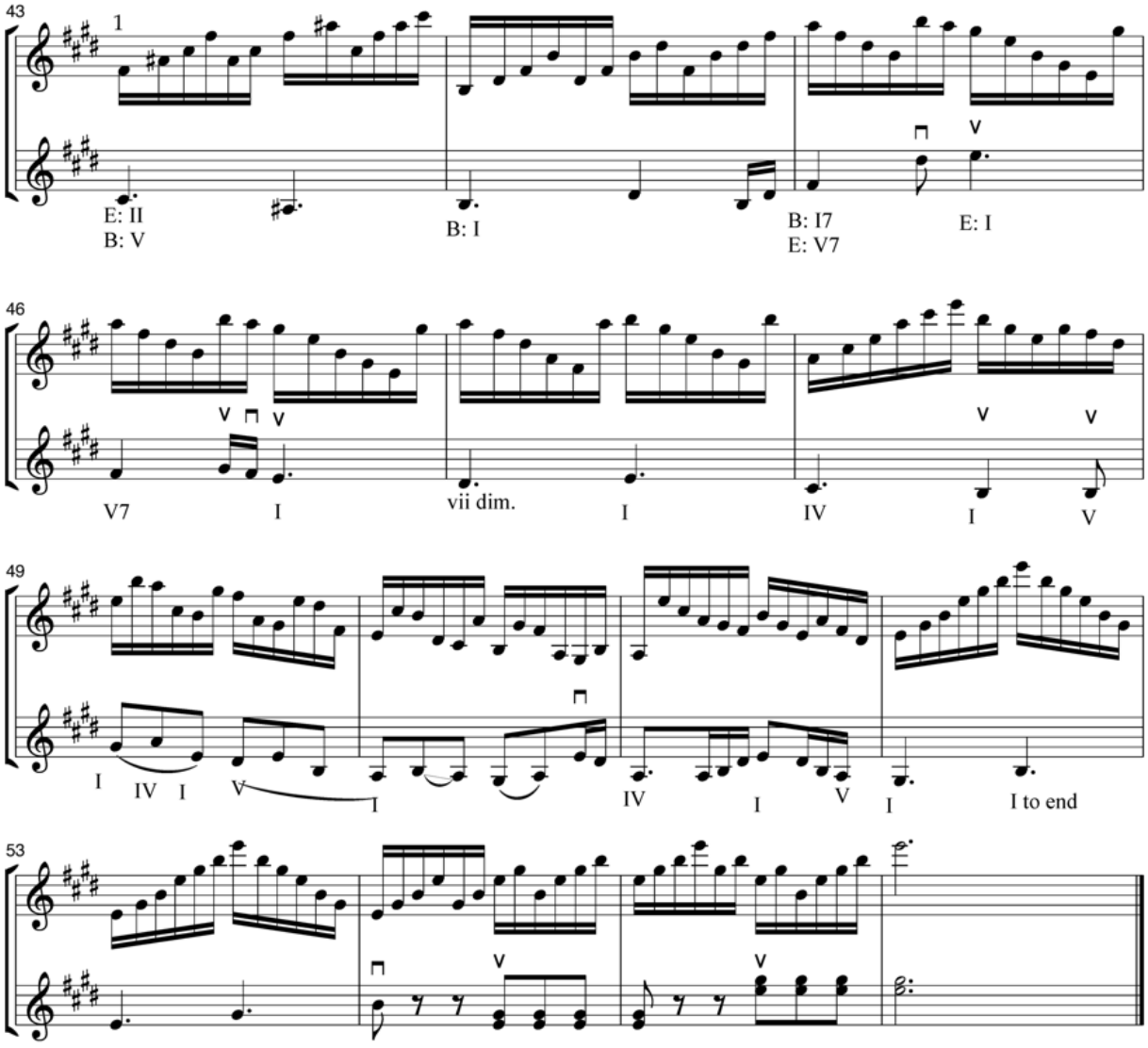
Musical Accompaniment

R. Kreutzer, P. Amirinazari




2
13
V
I
V
16
I
V7
I
2
1
19
V
E: i
e: i
e: V
e: i
G: vi
22
G: ii7
V7
I
V7
I
V7
25
I
V
vi
iii
IV
I


3
28
V7
I
vii dim
I
V7
I
vii dim
I
V
V7
31
I
e: vii7 dim
e: i
34
VI
i
IV7 #4
V
iv
IV7 #4
V
iv
IV7 #4
37
3
1/2
2/1
V
V7
E: I
V7
40
I
V7
I
IV


43
1
E: II
B: V
B: I
B: I7
E: V7
E: I
46
V7
I
vii dim.
I
IV
I
V
49
I
IV
I
V
I
IV
I
V
I
I to end
53

Conclusion

Through my own learning and teaching, I have come to realize how critical the understanding of harmony and just intonation is to a violin student's development. I have heard immediate improvements in intonation as my students listen to the relationship between the pitches. I have also witnessed that, as students' intonation improves, their excitement for learning how melodic lines relate to harmony grows.

I believe that the experience of learning harmony using their instruments prepares students to succeed in music theory after high school. By practicing integration of harmonic topics and violin playing using short exercises, students are drawn to music theory more naturally and are able to understand its relevance to the violin. The exercises in this project are intended to be building blocks for students. With their understanding of cadences, chords, and key changes, students will be better prepared to make musical decisions about phrasing and expression, and furthermore, the connections made through the exercises will help build confidence in them about their abilities to understand and discuss music.

For myself, this project has been the start of a career-long commitment to helping violinists hear more harmonically and understand what they are playing. Future research will include creating exercises in minor keys and scales. I would like to explore other dominant-functioning chords such as the diminished seventh chord and provide lessons on how the chords played as triple- and quadruple- stops on the violin relate to the chords and arpeggios previously learned. This would address the commonly used inversions of the triple- and quadruple- stops and offer advice on the left-hand matters that would help students play the chords more beautifully.

The outcome for teachers is to become more conscious of how they approach the concept of harmony and of the importance of its integration using the sound of the violin in private lessons. My desire is that teachers will feel more and more comfortable about pointing out the important cadences and harmonic events in études and other repertoire, fostering frequent discussions about harmony in lessons.

The outcome for students is the ability to engage in conversation about what they are hearing and playing, as well as the ability to play better in tune. If students can learn to hear harmony in their solo repertoire, they will be able to do the same in orchestral or chamber music repertoire. Students will be better equipped to participate and contribute in all ensemble settings.

There is a large body of pedagogical literature that addresses the technical components of violin playing, yet I believe a lasting understanding of music is built only through stronger listening skills. We owe it to our students to communicate more consistently about harmonic underpinnings which bring life to the melodies. By opening the door to these ideas, we encourage students to be curious and inspired about exploring beyond the lessons provided in the project. In my research I have not yet come across teaching methods that require both the teacher and student to be involved in hearing and identifying the implied harmonies within the major scale. Through this project, I have offered organized methods to discuss harmony with students as well as the duet accompaniments to etudes to implement the methods. For a long time, music theory was synonymous with harmony and I often felt overwhelmed because of the thought that I needed to understand every connecting point of every topic before moving on to the next. I hope that this project will sufficiently encourage teachers to teach using what they already know in sound and experience, with the confidence that their teaching will provide students with the

harmonic foundation for life as musicians.

References

Auer, Leopold. *Violin Playing As I Teach It.* New York: Dover Publications, 1980.

Brändström, Sture. "Music Teachers' Everyday Conceptions of Musicality." *Bulletin of the Council for Research in Music Education*, no. 141 (1999): 21-25. http://www.jstor.org.ezproxy.library.wisc.edu/stable/40318978.

Buckles, Michael Kim**.** "A Structured Content Analysis of Five Contemporary Etude Books for the Violin." Doctoral diss., Louisiana State University. 2003.

Bullis, Carleton. "Harmony Study That Correlates with Musical Needs." *Music Educators Journal* 23, no. 3 (1936): 26-27. http://www.jstor.org.ezproxy.library.wisc.edu/stable/3385103.

Cutler, Amy. "Rodolph Kreutzer's *Forty-Two Studies or Caprices for the Violin;* Detailed Analyses According to Ivan Galamian's Philosophies of Violin Playing." Doctoral diss., Northwestern University. 2003.

Doflein, Erich and Elma. *The Beginning,* Doflein Method: The Violinist's Progress, Vol. I. London: Schott, 1957.

Flesch, Carl. *Scale System: Scale Exercises in All Major and Minor Keys for Daily Study*. Berlin: Ries & Erler, 1987.

Fischer, Simon. *Basics, 300 exercises and practice routines for the violin.* London: Peters, 1997.

Fischer, Simon. *Practice, 250 step-by-step practice methods for the violin.* London: Peters, 2004.

Galamian, Ivan. *Principles of Violin Playing & Teaching*. New Jersey: Simon & Schuster, 1985.

Gardner, Samuel. *School of Violin Study Based on Harmonic Thinking.* New York: Carl Fischer, 1939.

Gossett, Philip. "Scholars and Performers." *Bulletin of the American Academy of Arts and Sciences* 45, no. 6 (1992): 32-51. doi:10.2307/3824150.

Hindemith, Paul. *Traditional Harmony: with emphasis on exercises and a minimum of rules.* London: Schott, 1943.

Jensen, Hans Jørgen, and Minna Rose Chung. *Cello Mind: Intonation and Technique.* Chicago: Ovation Press, 2017

Johnson, Erik. "Practical Tools to Foster Harmonic Understanding." *Music Educators Journal* 99, no. 3 (2013): 63-68. http://www.jstor.org.ezproxy.library.wisc.edu/stable/23364263.

Knieter, Gerard L. "Musicality Is Universal." *Music Educators Journal* 54, no. 3 (1967): 46-116. http://www.jstor.org.ezproxy.library.wisc.edu/stable/3391186.

Kostka, Stefan and Dorothy Payne. *Tonal Harmony: with an Introduction to Twentieth-Century Music.* New York: McGraw-Hill, 2000.

Lemmel, Larry. "Basic Theory for Young Performers." *American Music Teacher, 14*, no. 2 (1964): 25-37. http://www.jstor.org.ezproxy.library.wisc.edu/stable/43536834.

Müller-Hartmann, Robert. "On Teaching Harmony." *Music & Letters*28, no. 4 (1947): 364-68. http://www.jstor.org.ezproxy.library.wisc.edu/stable/855072.

Piston, Walter. *Harmony.* New York: Norton, 1987.

Ross, Barry. *A Violinist's Guide for Exquisite Intonation.* Fairfax, VA: ASTA, 1944.

Rolland, Paul. *The Teaching of Action In String Playing.* U.S.A: Boosey & Hawkes, 1974.

Stolba, K. Marie. *A History of the Violin Étude to About 1800.* Kansas: Fort Hayes Studies, n.d.

Thompson, James Christopher. "A Practice Manual: Jacob Dont's "Twenty-Four Studies," Opus 37." Doctoral diss., Louisiana State University. 1986.

Turek, Ralph. *Theory for Today's Musician.* New York: McGraw-Hill, 2007.

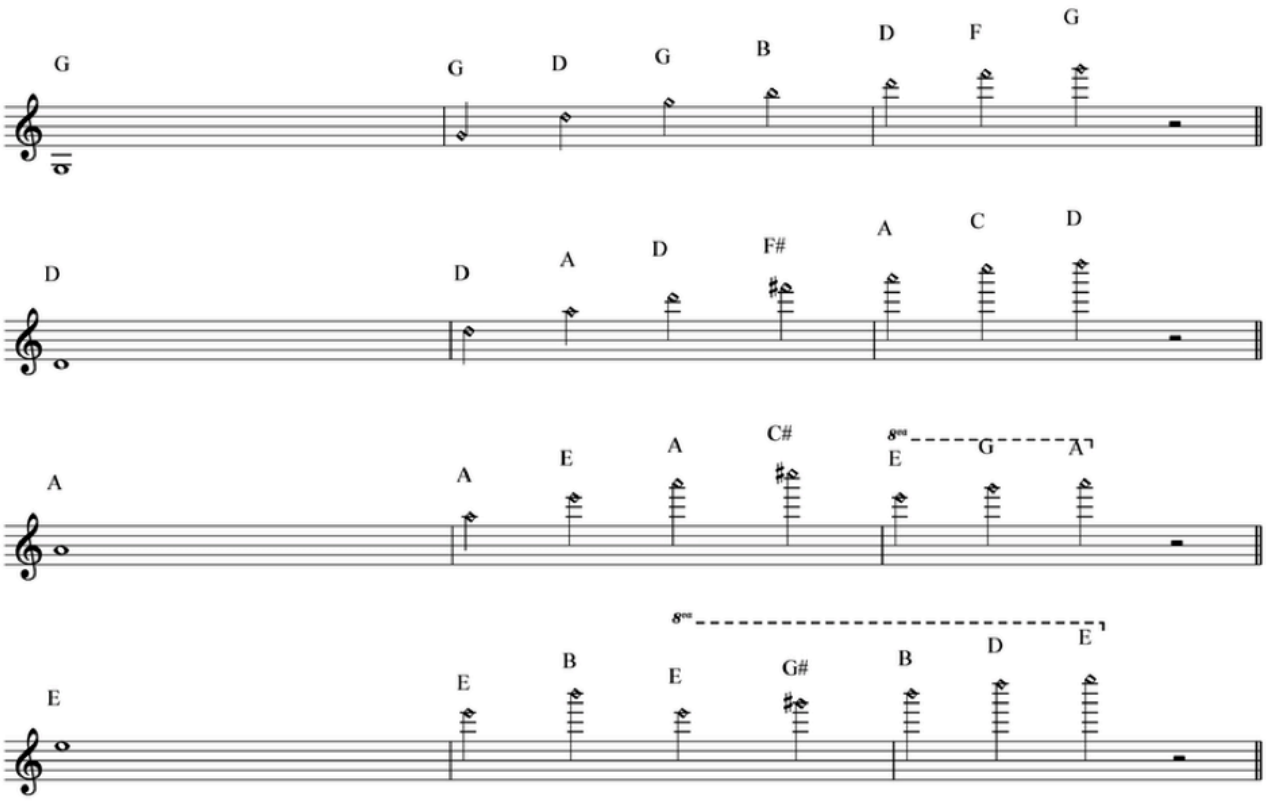
Underwood, Rex. *Know Your Fingerboard*. Portland, OR: Manuflex, 1955.

Wright, Emily. *Mix and Match Etudes to Develop Student Techniques*. *Strings;* Dec 2012; 27, 5; Music Periodicals Database pg. 43

Yang, Semi. "Violin Etudes: A Pedagogical Guide." Doctoral diss., University of Cincinnati. 2006.

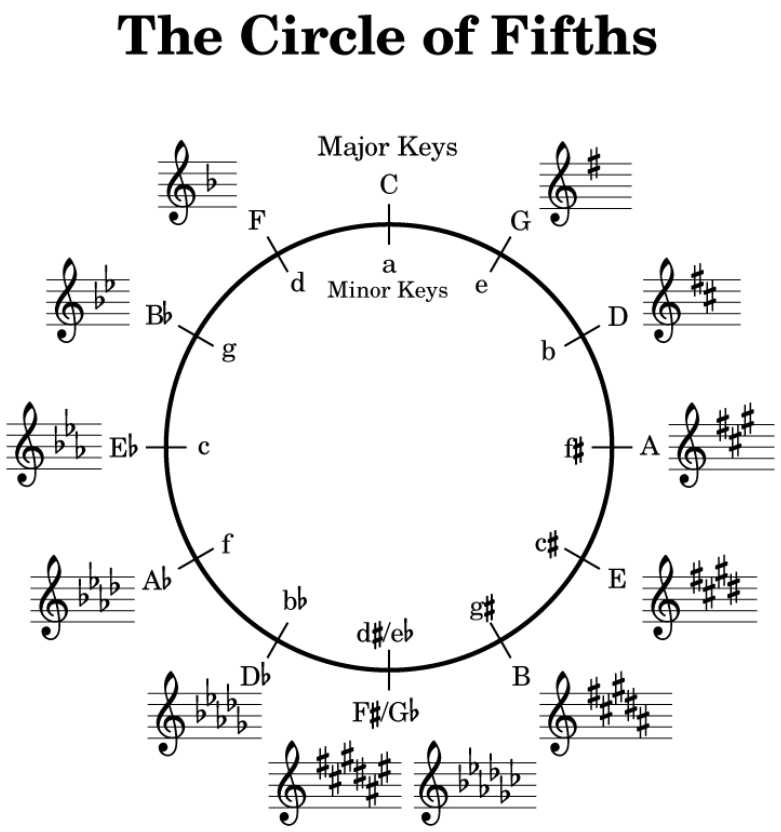
Appendix 1: Overtone Series

The first seven overtones above the fundamental where each fundamental is an open string of the violin.



Appendix 2.1: Circle of Fifths

"Here are all the possible major scales, each having a different pitch of the chromatic scale as its starting point. The arrangement given here, with the familiar key signatures in increasing numbers of sharps or decreasing numbers of flats, is called the *circle of fifth(s)*, the keynote of any scale being the fifth note of the scale to the left of it."[54]



[55]

The circle of fifths can be used as a tool to understand key signatures and their relationship to one another. "Each pair of major and minor modes has the same diatonic

[54] Piston, 6.
[55] Frank Jargstorff, "The Circle of Fifths," Frank Jargstorff's Blog, accessed May 13, 2020, http://www.jargstorff.us/2011/circle-of-fifths/.

collection and key signature, while the collections of adjacent, 5th-related pairs differ by one sharp or flat."[56]

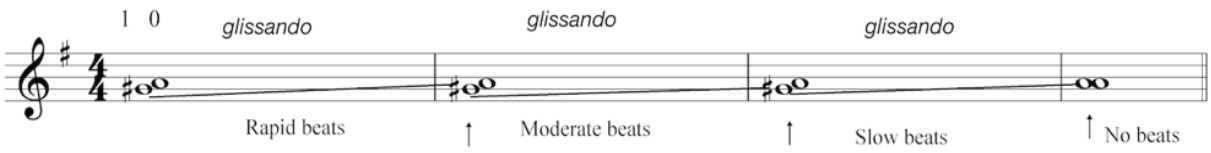
"Key relationships are generally measured by the 5th, the 'remoteness' of one key from another usually being determined by the number of 5ths separating them; the Circle of Fifths, when it takes into account the system of relative keys (e.g. A minor is the relative minor of C major), has generally been regarded as the most direct path for modulation."[57]

[56]Hyer, Brian. "Key (i)." *Grove Music Online.* 2001; Accessed 13 May, 2020. https://www-oxfordmusiconline-com.ezproxy.library.wisc.edu/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000014942

[57] Drabkin, William. "Fifth." *Grove Music Online*. 2001; Accessed 13 May, 2020. https://www-oxfordmusiconline-com.ezproxy.library.wisc.edu/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000009616

Appendix 2.2: Eliminating Beating Frequencies

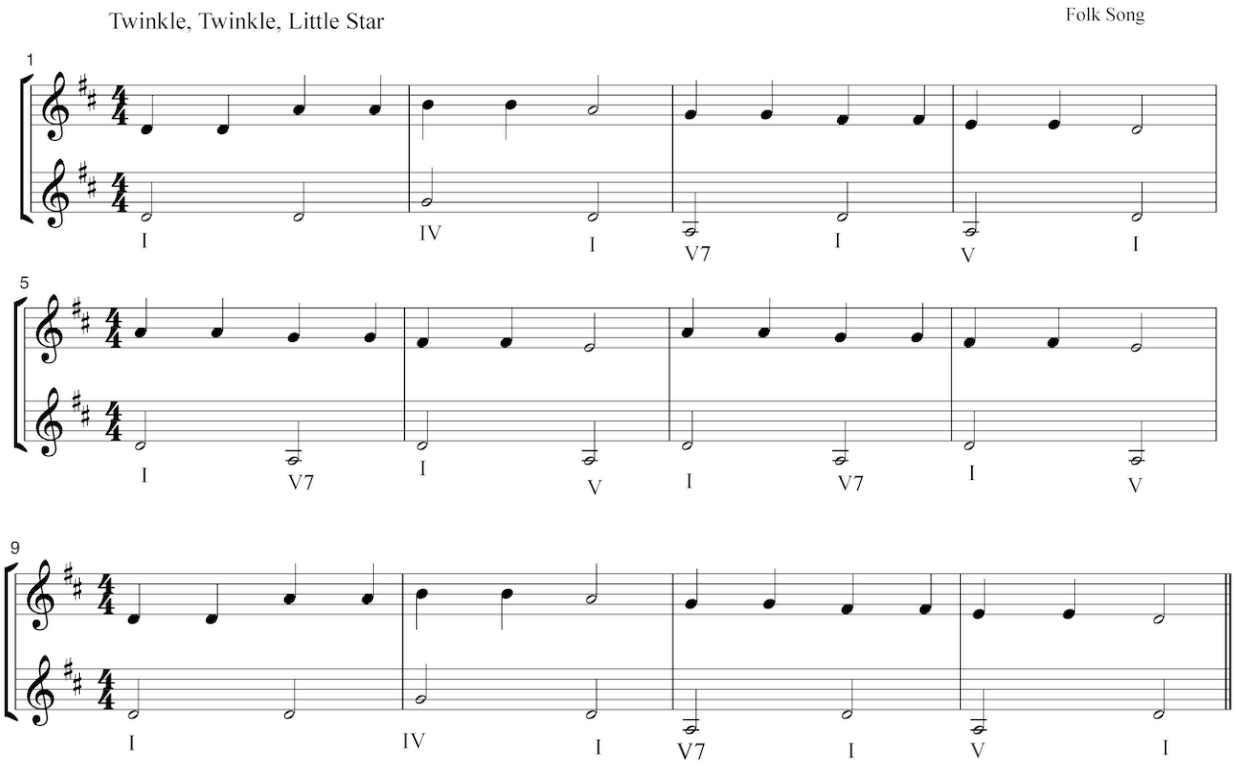
The teacher can use this exercise to demonstrate the sound of the beating frequencies that occur when a double-stop is out of tune and how the double-stop sounds in tune (when the common overtones vibrate and swing together in unison), eliminating the out of tune beating frequencies. Make sure to use a slow and even bow speed, listen to how the harmonics beat against each other until they begin to vibrate in unison, and move in small increments toward the unison. It is interesting to note how the beating frequencies slow down as the pitch approaches the sweet spot.[58]



[59]

[58] Jensen and Chung, 29.
[59] Ibid.

Appendix 2.3: Singing and Playing, Twinkle, Twinkle Little Star



Appendix 4.1
Étude Books Consulted ("Large Collection")

Campagnoli, Bartolomeo. 7 *Divertimenti*. Leipzig: C.F. Peters, n.d.

Dancla, Charles. *Thirty-Six Easiest Melodic Studies, Op.84.* N.p., n.d.

Dancla, Charles. *Twenty Brilliant and Characteristic Etudes, Op. 73.* USA: Kalmus, n.d.

Dont, Jacob. 1919. *Etudes and Caprices, Op. 35.* London-Hamburg: N. Simrock, n.d.

———N.d. *Preparatory Exercises to the Studies of R. Kreutzer and P. Rode, Op. 37.* New York: G. Schirmer, n.d.

Ernst, H.W. 1919. *Six Polyphonic Études.* London: Augener, n.d.

Fiorillo, Federigo. *Thirty-Six Studies*. New York: International Music Compan, n.d.

Gavinies, Pierre. *Twenty-Four Studies.* New York: International Music Company, n.d.

Kayser, H. E. (Heinrich Ernst). *Thirty-Six Elementary and Progressive Studies for the Violin (in three books).* U.S.A: Schirmer, 1915.

Kreutzer, Rodolph. *Forty-Two Studies.* Schirmer, 1939.

Mazas, Jacques Fereol.. *Forty Selected Studies for the Violin, Op. 36 (book I).* New York: Schirmer, 1916.
——— *Seventy-Five Melodious and Progressive Studies.* N.p., n.d.
——— *Forty Selected Studies For the Violin, Op. 36 (book II).* New York: Schirmer, 1916

Paganini, Niccolo. *Twenty-Four Caprices Opus 1.* New York: International Music Company, n.d

Rode, Pierre. *Twenty-Four Caprices in the Twenty-Four Major and Minor Keys.* New York: G. Schirmer, 1943.

Vieuxtemps, Henri. *Concert Studies, Opus 16, for Violin Solo.* New York: International Music Co., 1914.

Wieniawski, Henrik. *Ecole Modern.*

Whistler, Harvey. *Preparing for Kreutzer, vol. 1.* Chicago: Rubank, Inc., n.d.

Wohlfahrt, *Franz. Sixty Studies for the Violin Op. 45.* New York: Schirmer, n.d.

Ysaÿe, Eugene. *Ten Preludes, Op. 35.* Schott, n.d.

Appendix 4.2
Étude Books with Duets ("Duet Collection")

Dancla, Charles. *Metodo Elementare E Progressivo per Violino.* Italy: Edizioni Ricordi, n.d.

———*15 Studies for Violin with ad lib. Part for Second Violin. Op. 68.* Boston: White's Edition, n.d.

———*16 Melodious Studies for the Violin In the First Five Positions with Accompaniment for Second Violin, Op. 128.* Boston: White's Edition, n.d.

Dancla, Charles. *Le Semainier du Jeune Violoniste Op. 144.* Paris: Colombier, n.d.

Doflein, Erich. *The Doflein Method: The Violinist's Progress, Vols. I-V*. London: Schott, 1957.

Dont, Jacob. *Twenty Progressive Exercises for the Violin with Accompaniment of a Second Violin, Op. 38.* New York: Schirmer, 1897.

Dont, Jacob. *24 Exercises Op. 37: Preparatory to Kreutzer and Rode Studies, Violin and Piano.* N.p., n.d.

Fiorillo, Federigo. *36 Études or Caprices for Violin with Duet accompaniment by Spohr*. London: Peters. 1854.

Kayser, Heinrich Ernst. *Beginner Method for Teacher and Student, Op. 32.* London, n.d.

Kreutzer, Rodolphe. *40 Etudes ou Caprices pour le Violon de Kreutzer: Accompagnement de Violon par Adolf Grünwald.* Paris: Verlag, n.d.

Martinu, Bohuslav. *Etudes Faciles a Deux Violins.* N.p., n.d.

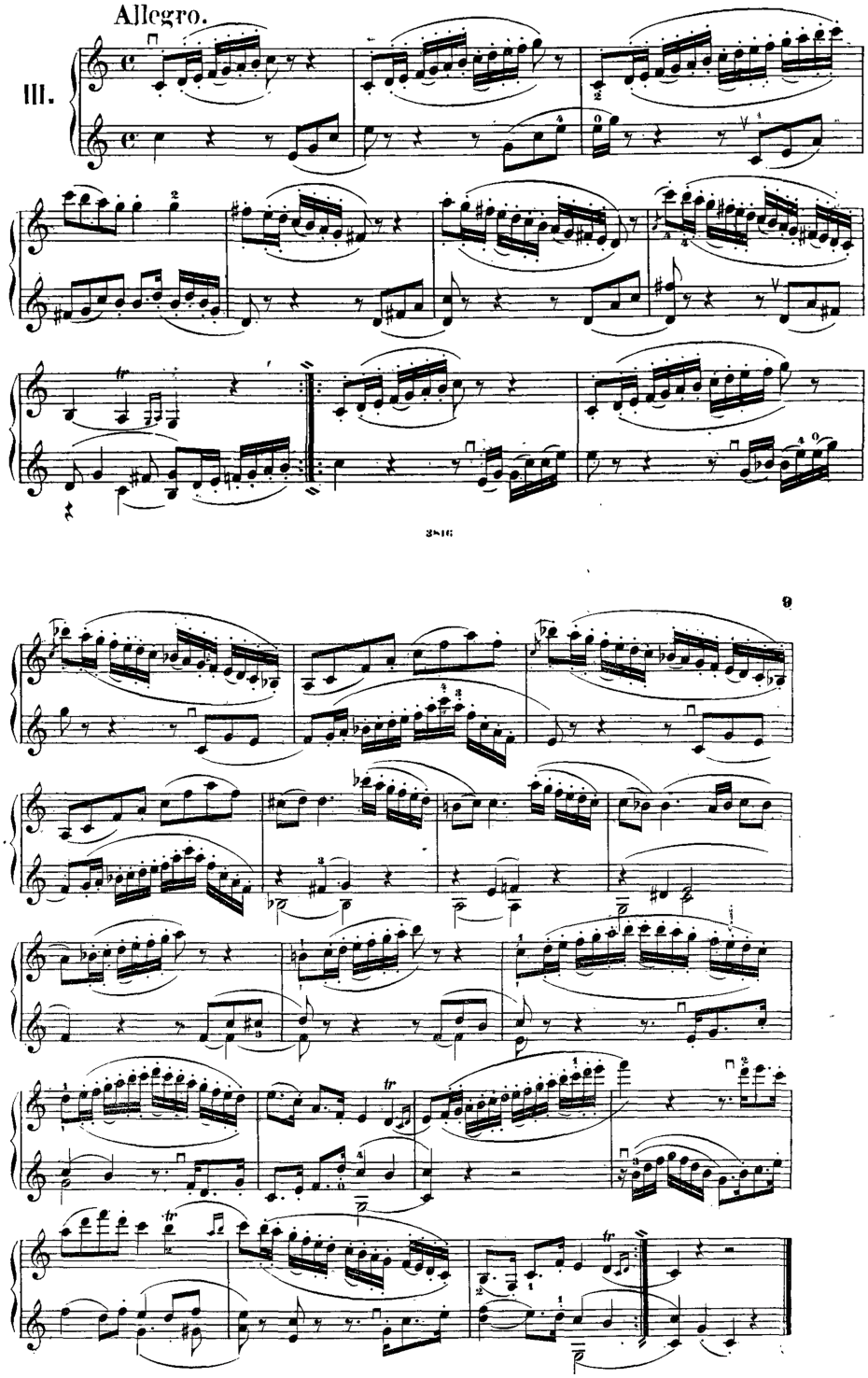
Mazas, Jacques Fereol. *Méthode de violon, Op. 34*. N.p., n.d.

Wohlfahrt, Franz. *Easiest Elementary Method for Beginners, Op. 38*. N.p., n.d.

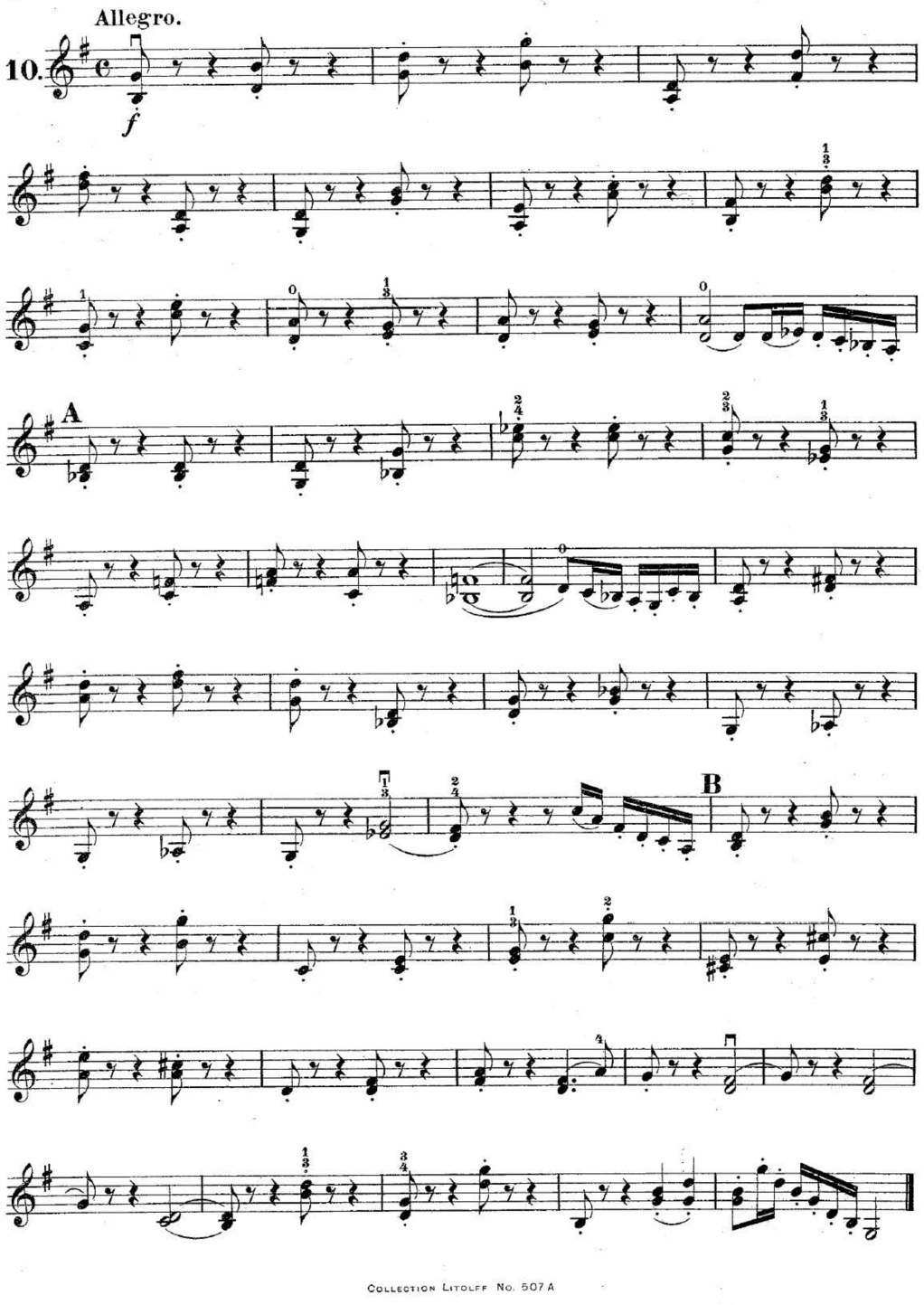
Wohlfahrt, Franz and Mark Paxson. *Wohlfahrt in Duets, Op. 45, Sixty Studies For the Violin, Book 1.* Boston: Rainbow Music, n.d.

Appendix 4.3
Étude Books Consulted ("Large Collection")

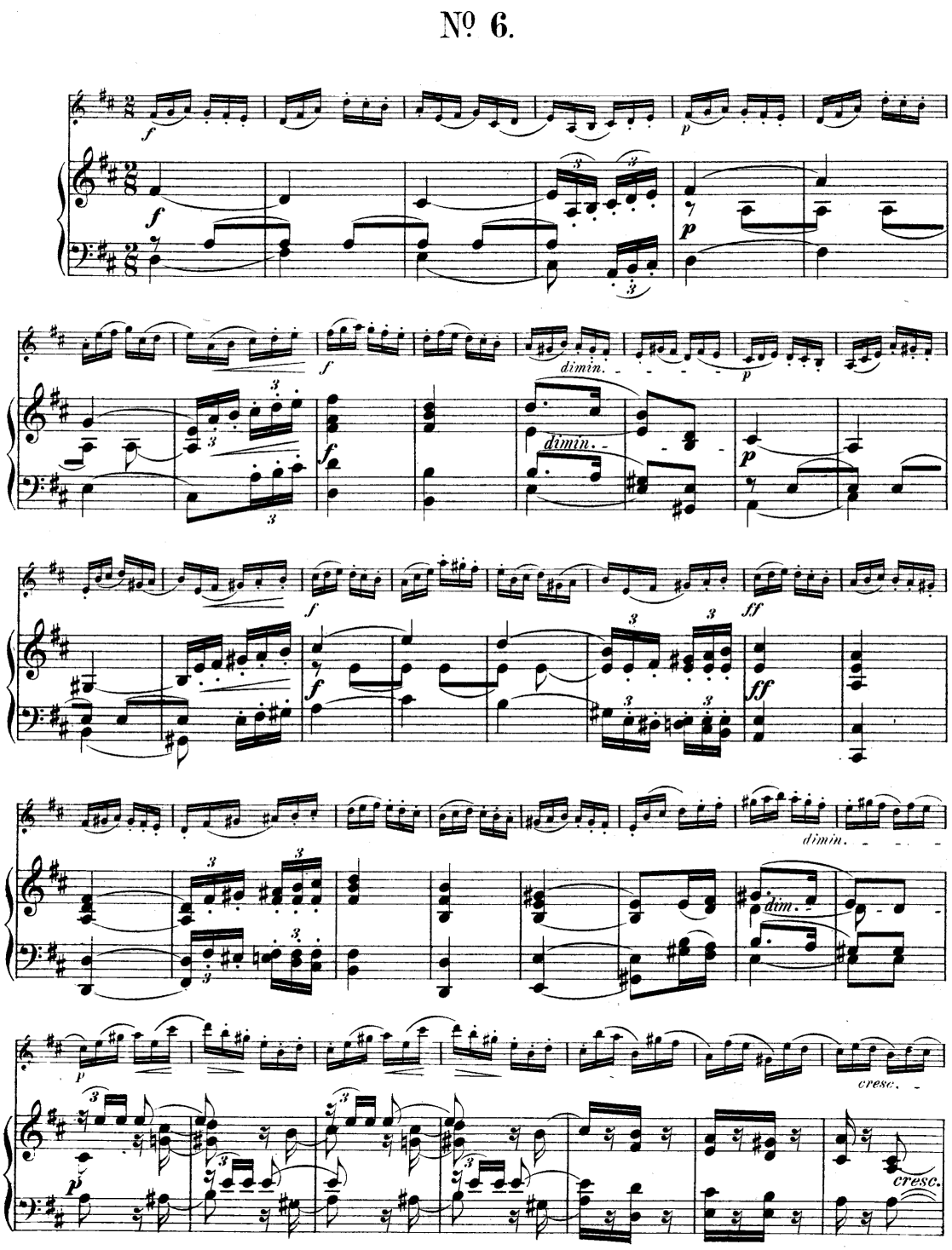
Fiorillo, Étude No. 3 with duet accompaniment written by Louis Spohr:

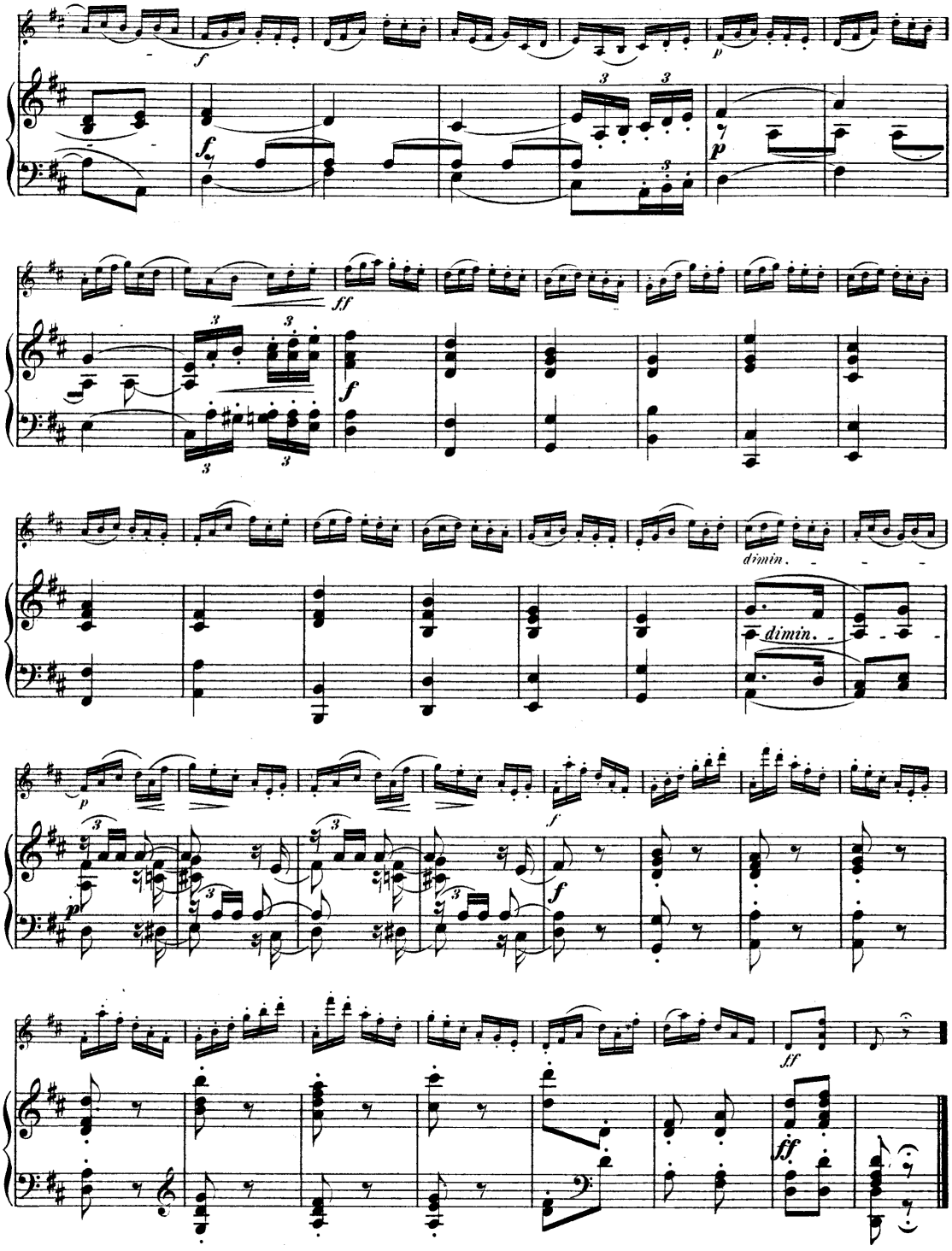


Kreutzer, Étude No. 10 duet accompaniment composed by Adolf Grünwald:



Dont Opus 37, Étude No. 6, with anonymous piano accompaniment:




dimin.
dimin.

Kreutzer, Étude No. 8 accompaniment composed by Adolf Grünwald: