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By Michael Callahan

During the Fall 2010 semester, I found myself teaching the same topics in two very different courses. One was a traditional tonal counterpoint curriculum in which students scratched out homework assignments with pencils and manuscript paper. The other was a hands-on keyboard workshop that taught figured-bass realization and used it as a springboard for improvisation. In spite of the different formats, the two courses had the same objective: for students to create, either on paper or at the keyboard, music in the style of the eighteenth century. My expectations for the keyboard improvisers were modest, given their lack of experience at the instrument; in contrast, I expected the counterpoint students to master minuets, two-part inventions, and chorale preludes. However, almost without exception, the keyboard students improvised better counterpoint than the counterpoint students wrote; the work of the former was more idiomatic, more musical, and much more fluent than that of the latter. This article illustrates the more successful pedagogy—that of the keyboard course—and adapts it to teaching the written course more effectively as well.

Several scholars have argued for the value of improvisation in the pedagogy of music theory and aural musicianship.[1] In their adaptation of Benjamin Bloom's learning taxonomy to music, Deborah Rifkin and Philip Stoecker classify it as one of the most advanced stages of learning.[2] Nancy Rogers notes that it encourages creativity, fostering an environment in which there

[1] See, for instance, Kate Covington, "Improvisation in the Aural Curriculum: An Imperative," *College Music Symposium* 37 (1997): 49-64; Steve Larson, "'Integrated Music Learning' and Improvisation: Teaching Musicianship and Theory Through 'Menus, Maps, and Models'," *College Music Symposium* 35 (1995): 76-90; and Peter Silberman, "Post-Tonal Improvisation in the Aural Skills Classroom," *Music Theory Online* 9/2 (July 2003).

[2] Deborah Rifkin and Philip Stoecker, "A Revised Taxonomy for Music Learning," *Journal of Music Theory Pedagogy* 25 (2011): 155-89.

is no single correct answer.[3] Peter Schubert makes improvisation a primary focus from the beginning, discarding abstractions and asking students to "play in the sandbox" by improvising real music in every class.[4] This report is intended as a resource for instructors wishing to incorporate improvisational learning throughout a curriculum on Baroque counterpoint; it presents classroom-tested exercises and teaching strategies ranging from very basic to more advanced.[5] Even for non-pianists, the activities are most directly applicable at the keyboard, although their primary objective is not to train keyboard improvisers. Rather, they cultivate fluency with basic contrapuntal techniques, permitting instructors to expect better mastery and musicality from their students.[6] The two-voice exercises demand only modest keyboard technique, while the ones in three voices suit those with some comfort at the instrument. While figured-bass realization in four voices could certainly play a role in the curriculum as well, I soft-pedal it in favor of thinner textures that emphasize independent voices rather than full chords. I have observed even graduate students resorting to rote memorization in order to cope with the demands of playing and keeping track of four simultaneous voices; when these demands are fewer, the same students are able to attend to the more sophisticated tasks that ultimately matter more in counterpoint study (e.g. incorporating dissonance, playing motivically, transposing).

Parts of this improvisational method are also appropriate for core undergraduate courses in theory and aural musicianship. All of the two-voice activities can be adapted to other single-line instruments, including voice, if students take turns improvising the

[3] Nancy Rogers, "How Structured Improvisation Can Improve Sight-Singing Performance (And More)," *AP Music Theory: Teaching Sight Singing* (pp. 49-58), ed. Ken Stephenson (New York: The College Board, 2008).

[4] Peter Schubert, "Global Perspective on Music Theory Pedagogy: Thinking in Music," *Journal of Music Theory Pedagogy* 25 (2011): 217-33.

[5] Peter Schubert and Christoph Neidhöfer's textbook on Baroque counterpoint includes brief descriptions of some improvisational activities within several of its chapters. My intent is to provide exercises in sufficient number and detail to comprise the improvisational track of an entire curriculum.

[6] This approach utilizes the keyboard as accessibly as possible. Keyboard specialists interested in more advanced Baroque-style improvisation could investigate the wealth of historical treatises that address the subject, which are far too numerous to list here.

upper line while another student, or the instructor, or a recording, provides the bass.[7] Finally, there are many modes of improvisation, some stricter and some looser, that are beneficial to the pedagogies of counterpoint, aural skills, and written music theory. Of course, the strictest mode involves generating pitches and rhythms on an actual instrument in real time, but even this is prepared to some degree. In addition, students should be encouraged to experiment during practice, work out (but not notate!) a realization of the assigned task, and play it in class. The process still engages aural, haptic, and logical learning processes; it still teaches idiomatic patterns and techniques; and it even trains musical memory. In fact, it is exactly this "mostly prepared improvisation" that makes an improvisational curriculum accessible to all levels of students, and permits the inclusion of sophisticated techniques such as motive and imitation. Furthermore, in a course that involves written work, improvisational skill is applicable even in the absence of an instrument; students who can improvise can also compose fluently (or "virtually improvise") at the chalkboard or on manuscript paper. Improvisation converts contrapuntal topics and principles (e.g. dissonance treatment, voice leading) into tasks—and, even better, habits—which are relevant even outside of real time and away from an instrument.

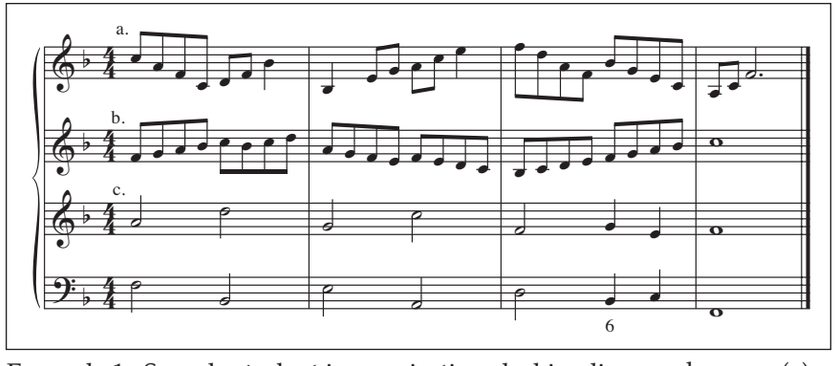
Parts 1 and 2 present simple activities in two voices, which focus on constructing and then varying contrapuntal frameworks. Part 3, a methodological interlude, offers strategies for individual practice and for group learning in the classroom. Part 4 explores improvisation in three voices, both actual and implied, and Part 5 suggests one avenue of further study for more advanced students. The curriculum engages aural, visual, intellectual, and instrumental modes of music learning to develop skills that fuse theory with musicianship. Students do more than obey abstract rules and avoid pitfalls, and indeed learn to play in the style of the eighteenth century. They gain first-hand experience with composing pieces

[7] Due to the primarily instrumental models of Baroque counterpoint, in contrast to the vocal and choral ones of the Renaissance, instructors should be careful not to rely exclusively on the voice for teaching the former. Moreover, neither the voice nor any single-line instrument can simulate the task of juggling two contrapuntal voices simultaneously. Hence, while many of the activities are designed to accommodate classes that do not take place in keyboard labs, at least some individual keyboard work is essential.

in historical styles and develop a deeper understanding of the literature that they play—tools that equip them for advanced coursework while also illuminating the true value of counterpoint study.

Part 1: Contrapuntal Frameworks

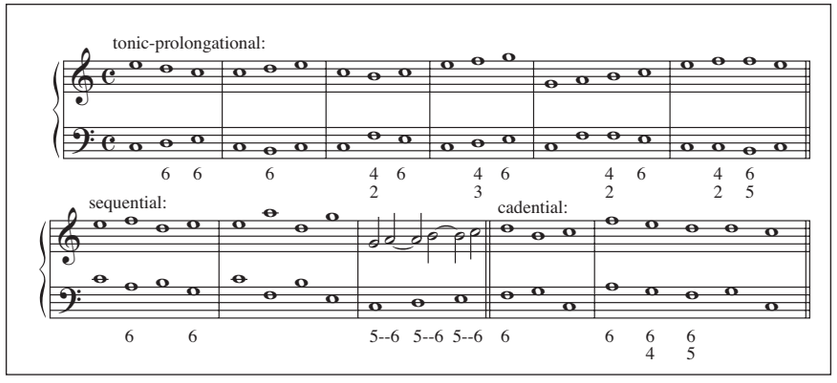
Without guidance, a beginner may improvise with either too much or too little emphasis on chords. Student A's vertically conceived arpeggiations (Ex. 1a) need a more coherent sense of line, while Student B's line (Ex. 1b) lacks an awareness of consonance and dissonance. A contrapuntal framework for the upper voice (Ex. 1c) changes the game dramatically: Student A's orientation becomes more linear, while Student B's instinct for a smooth line is reigned in by a set of consonant targets.



Example 1: Sample student improvisations lacking linear coherence (a) and dissonance control (b), and a solution (c).

Ready-made contrapuntal idioms, or schemata, provide an efficient way of constructing outer-voice frameworks. Students internalize patterns, which range from two intervals through an entire sequential progression, and learn the contexts in which each can be applied.[8] These idioms fall into categories such as tonic-prolongational, sequential, and cadential (Ex. 2).

[8] This method resonates especially well with historical pedagogies that approached improvisation schematically; fluency comes more easily to a student who can concatenate pre-learned idioms than to one who must generate the music from scratch. See, for instance, the discussions of *partimenti* in Robert Gjerdingen, *Music in the Galant Style* (New York: Oxford University Press, 2007); Robert Gjerdingen, "Partimenti Written to Impart a Knowledge of Counterpoint and Composition," *Partimento and Continuo Playing in Theory and Practice* (pp. 43-70), ed. by Dirk Moelants (Leuven University Press, 2010); and Giorgio Sanguinetti,



Example 2: Contrapuntal idioms.

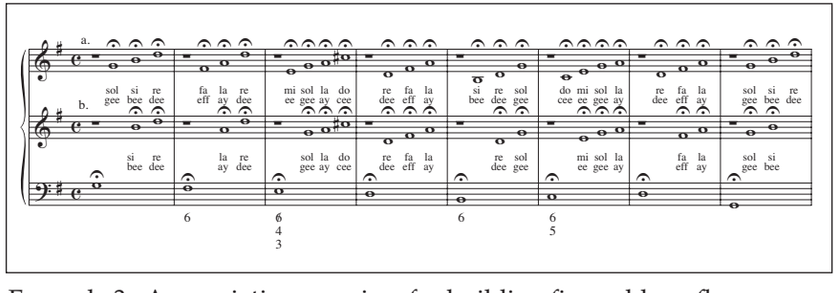
Students learn idioms through the following process: (1) play an idiom (or play one voice while singing the other); (2) transpose it to other keys and do the same; (3) when just soprano or just bass appears, fill in the missing voice and play both; (4) parse a longer bass or soprano into its idiomatic segments and fill in the missing voice.[9] Indeed, the entire elementary pedagogy that follows points, though not explicitly, in the direction of idioms; by utilizing figured basses as the basis for instruction in diminution, it actually teaches common progressions all along.

Idioms permit improvisational fluency by teaching the most common gambits, but students must be able to generate their own outer-voice counterpoint from scratch as well. In the absence of the latter method, they adopt a mindset of solving the riddle (i.e. "What is *the* soprano that I am *supposed* to use above this bass?"), overlooking both the existence of multiple good options and the

The Art of Partimento: History, Theory, and Practice (New York: Oxford University Press, 2012). Several modern theory textbooks also teach standard progressions and prolongations through contrapuntal idioms, or paradigms. For example, see Steven G. Laitz, *The Complete Musician*, third ed. (New York: Oxford University Press, 2012), pp. 177-9; Edward Aldwell and Carl Schachter, *Harmony and Voice Leading*, third ed. (Belmont, CA: Wadsworth, 2003), pp. 119-20; and Robert Gauldin, *Harmonic Practice in Tonal Music* (New York: Norton, 1997), pp. 156-60.

[9] Rogers presents an interactive method for teaching what she calls "building blocks" (pp. 52-3), by which a student listens to what another student sings (or plays), analyzes it immediately in terms of the idioms that were used, and then recreates it from the identified modules. The process works very well in any classroom with more than one keyboard.

value of choosing flexibly from them. Figured basses are well suited to teaching this flexibility because they offer an unambiguous harmonic underpinning, but within a context that privileges voice leading over chord roots. Students first arpeggiate rapidly beginning with each bass note (Ex. 3a), ignoring voice leading initially in order to discern quickly what is consonant. This is possible on any instrument, including voice if the syllables demonstrate pitch awareness (i.e. fixed-do solfège or note names).[10] I next introduce constraints that set the stage for desirable counterpoint, such as omitting outer-voice octaves except at cadential arrivals and avoiding $\hat{5}$ at authentic cadences (Ex. 3b). I also encourage students to include, if possible, any chromaticism that is prescribed by the figured bass (e.g. in the third measure) and any pitches necessary to define a particular harmony. However, I am careful not to overstate this last concern, since it could exclude good options (e.g. the parallel tenths at the opening) or place too much weight on chord content at the expense of voices. On keyboard, visual shorthands help students to associate intervallic shapes with figured-bass symbols—over a $\frac{5}{3}$ figure, a third beginning a tenth above the bass (e.g. B-D over G), and over a $\frac{6}{3}$ figure, a fourth beginning a tenth above the bass (e.g. G-C over E).

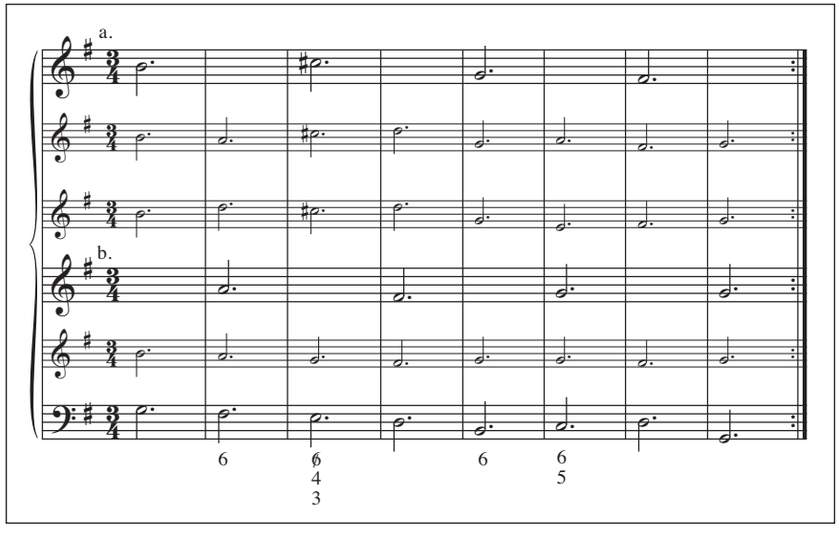


Example 3: Arpeggiation exercises for building figured-bass fluency.

Students then learn to lead an individual voice from a given starting pitch, creating 1:1 counterpoint that balances voice-leading requirements, smoothness, and interest. Fill-in-the-blanks activities

[10] If singing, students must simulate playing by employing a phenomenal, rather than a conceptual, set of syllables. The differences between the two systems are discussed in detail in William Marvin, "A Comparison of Four Sight-Singing and Aural-Skills Textbooks: Two New Approaches and Two Classic Texts in New Editions," *Journal of Music Theory Pedagogy* 22 (2008): 131-47.

work well. The whole class plays (or sings) only the provided soprano pitches while just one student at a time improvises a solution in each of the blanks; the bass is played by the whole class to keep everyone engaged, or by just the instructor if there is only one keyboard. The exercise in Ex. 4a shows that the D in m. 4 and the G in m. 8 are obligatory resolutions of the leading tones that precede them, while measures 2 and 6 each have multiple equally good options (shown beneath). The task in Ex. 4b is slightly more advanced, requiring students to approach a given note rather than to depart from one; they learn to distinguish requirements, such as the F♯ in m. 7, from preferable options, such as the parallel tenths in mm. 1-4.[11] Improvisers develop problem-solving ability by realizing each activity in several different ways.



Example 4: Fill-in-the-blanks activities.

The class eventually works through unprepared figured basses with no soprano pitches provided, using the bass and figures to visualize (on the keyboard, or on a staff) multiple options for an

[11] Given the abundance of possible paths through any improvisational task, it helps to draw a distinction between well-formedness rules and preference rules, as in Fred Lerdahl and Ray Jackendoff, *A Generative Theory of Tonal Music* (Cambridge: MIT Press, 1983). A framework with parallel fifths or an unresolved seventh is ill-formed, whereas one with a poorly motivated soprano or a preponderance of mid-phrase perfect consonances is simply less preferable.

upper voice. Eventually, the generative strategy and the idiom strategy intersect, the latter affording fluency—when improvisers instinctively resort to a learned idiom for a standard cadence, prolongation, or sequence—while the former encourages flexibility. Subsequent figured basses can feature the rhythmic variety of real music, rather than constant half notes, so that students can gain insight into harmonic rhythm and phrase design even while they improvise something as simple as 1:1 counterpoint.[12]

With its limited scope, note-against-note counterpoint is a crucial first step in an improvisational curriculum. It is a manageable environment in which to develop not only the basic skills of an improviser (e.g. fluent command of idioms, flexible problem solving), but also the fundamental tenets of counterpoint (e.g. traits of a good line, prolongations vs. progressions, outer-voice intervals). Indeed, even if undergraduate theory students were to reach only this far as improvisers, it would be no small achievement.

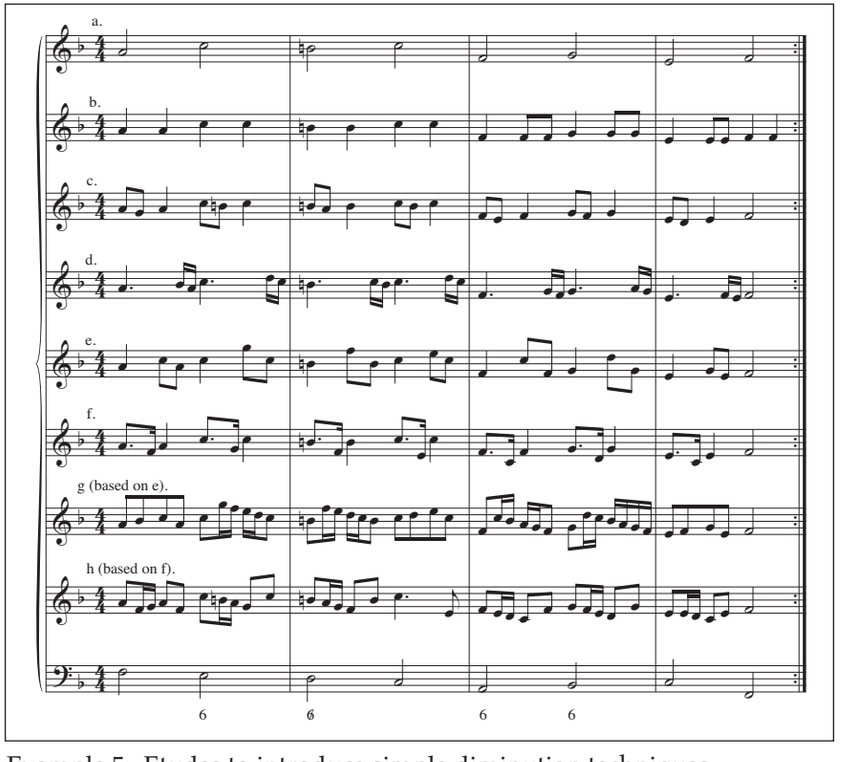
Part 2: Diminution and Dissonance Treatment

In my experience, the pedagogy of improvised diminution is successful insofar as it relies explicitly on the work that students have already done with contrapuntal frameworks. I employ spiral learning, returning to transpositions of the same basses taught in Part 1 in order to capitalize on their familiarity.[13] Although the techniques presented in this section are widely applicable, it is the process of applying them to *particular* frameworks—and exhausting their possibilities—that builds mastery of diminution.

[12] Schubert rightly argues that style and skeleton work at odds with one another; to focus on abstracted paradigms is to ignore, deliberately, aspects of rhythm, motive, and texture (2011, pp. 223-26). Still, I defend the virtue of this first unit on two grounds: it lasts only a few weeks, and it lends indispensible scaffolding to the subsequent units on diminution.

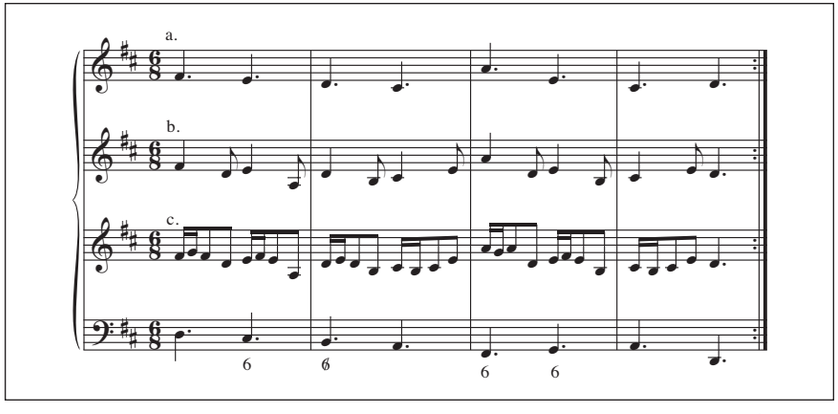
[13] The reader will notice that many of the sample exercises in this article feature transpositions of the same bass as well. While this is just one of many basses in the curriculum, its recurrence here is intended to demonstrate the value of spiral learning in the development of contrapuntal skill. I work almost exclusively in major and minor keys that appear on the top half of the circle of fifths (i.e. up through three sharps and flats), but try to use these fourteen keys equally throughout the curriculum.

In order to prevent beginners from losing sight of the frameworks and reverting to improvisations such as the ones in Exx. 1a and 1b, I initially require that *each structural soprano pitch* (Ex. 5a) *be both the first and last in its time span*; I encourage notated "lead sheets" that display the two outer voices as a reference. Carefully targeted etudes introduce each of the following embellishment types: simple repetitions in various rhythms (Ex. 5b); upper and lower neighbors in various rhythms (Exx. 5c and 5d); upward and downward leaps to and from other non-octave consonances (Exx. 5e and 5f); and passing motion that fills in these leaps (Exx. 5g and 5h). Exercises g and h are elaborations upon earlier activities, so students benefit from having the simpler version notated as a reference. Improvisers assemble a vocabulary of diminutions by practicing etudes such as these over other figured basses and in a variety of keys and meters.



Example 5: Etudes to introduce simple diminution techniques.

Using the skills developed in Part 1, students visualize the stable consonances available to them, which are the only pitches eligible to bookend skips and leaps. The next set of exercises begin each time span with the structural pitch as before, *but now insert a different consonance between it and the next one*.[14] The seams between changes of harmony require careful crafting; students must navigate (on keyboard) as well as audiate a smooth path across the seam. Example 6 shows a contrapuntal framework (a), an embellishment following the exercise described above (b), and a more elaborate version that adds lower and upper neighbors (c).[15]



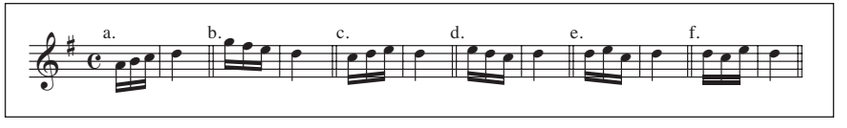
Example 6: Exercise in inserting additional consonances between the pillars of a contrapuntal framework.

Thinking too specifically about the function of each diminution option can be paralyzing if students stop to ask themselves, for example, "Should I use a passing tone here, or a lower neighbor?" Therefore, it pays to approach the activities in Exx. 5 and 6 as visual

[14] Of course, consonance and dissonance are reckoned chordally rather than acoustically. A perfect fifth above a bass figured with $\frac{6}{3}$ or $\frac{4}{2}$ is dissonant, while a diminished fifth belongs above a leading tone figured with $\frac{6}{5}$.

[15] The choice of additional consonant pitches in Exx. 5 and 6 does not always result in a complete harmony, or even in the inclusion of a chromatic or otherwise essential pitch (e.g. the G♯ in m. 2 of Ex. 6). While I tell students that complete harmonies are preferable, I avoid emphasizing this early on because it encourages a chordal orientation; see the block arpeggiations in Ex. 1a. Linearly conceived counterpoint and correct dissonance treatment are huge achievements at this stage, even if the texture is occasionally thin.

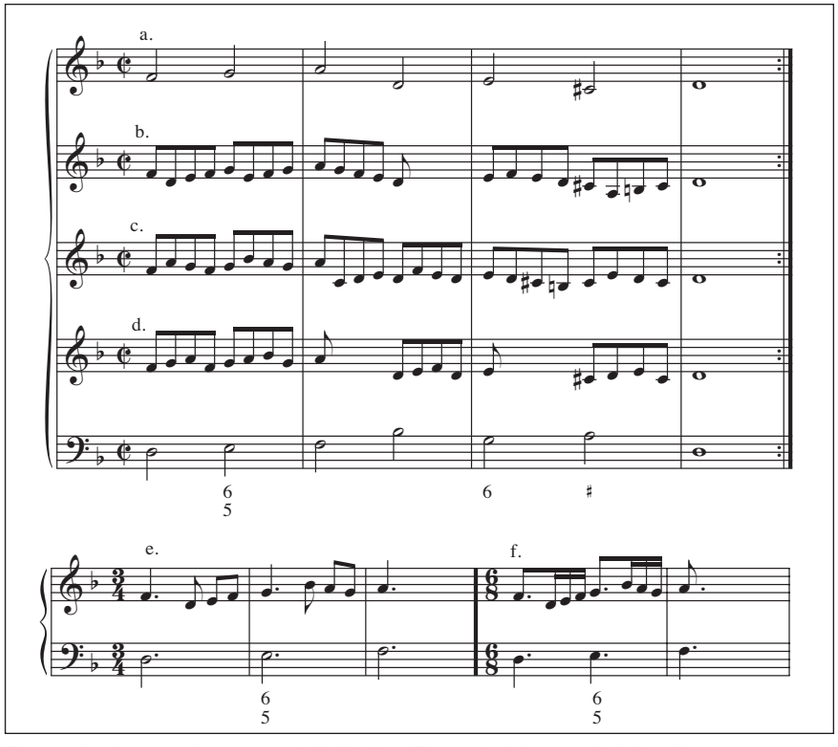
and kinesthetic habits, rather than only as cognitive constructs such as passing tones, neighbors, etc. Versatile melodic figures reduce the cognitive burden even further through shortcuts. One of the most pedagogically savvy historical presentations appears in the third volume of Michael Wiedeburg's treatise, *Der sich selbst informirende Clavierspieler*, published in 1775.[16] Each of three four-note melodic figures approaches a metrically strong consonance by means of a differently shaped series of three auxiliary pitches, as shown in Ex. 7: *Schleifer* (a and b), *Doppelschlag* (c and d), and *Schneller* (e and f), each in both directions.



Example 7: *Schleifer* (a/b), *Doppelschlag* (c/d), and *Schneller* (e/f).

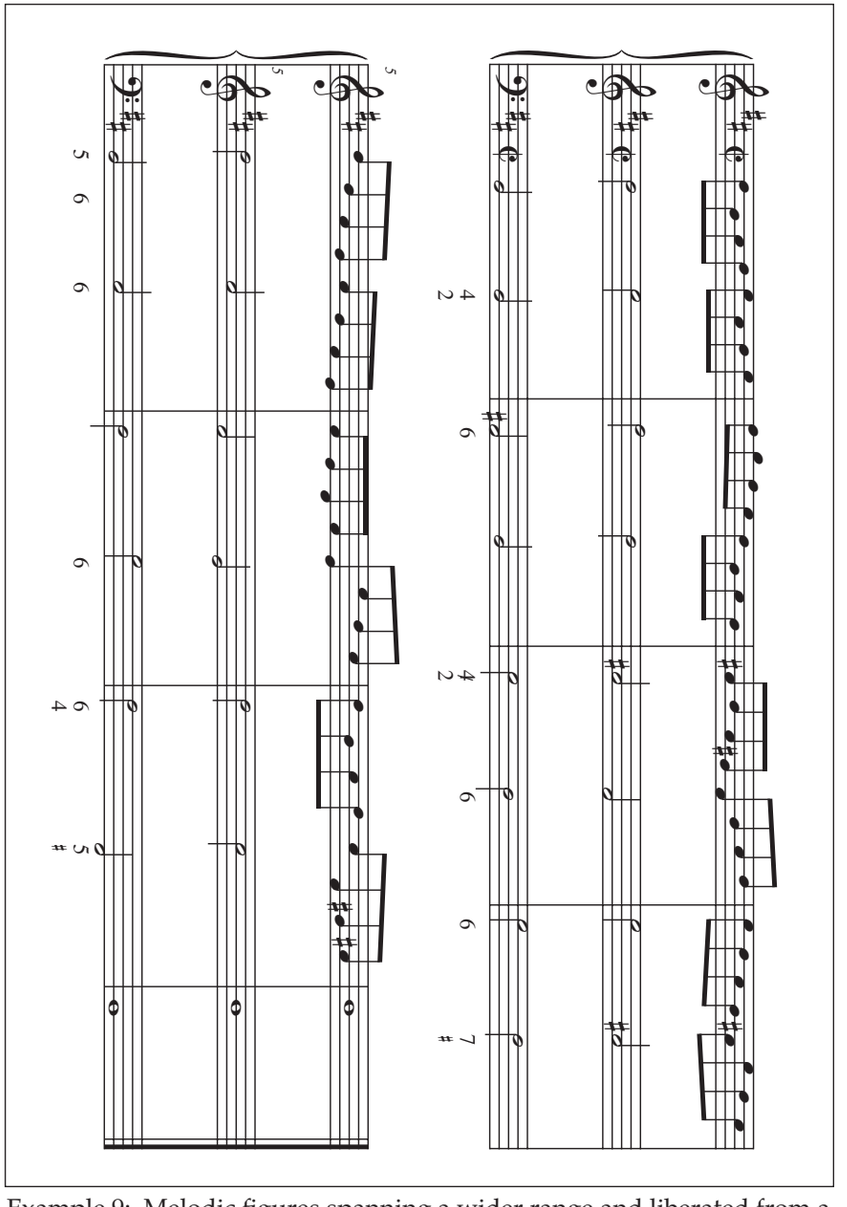
Students discover the contrapuntal situations to which each figure is suited, noting that the first pitch of the four must be consonant whenever it is approached by leap. These particular figures combat the novice's instinct to focus on each measure in isolation, using the bar lines as conceptual boundaries and sacrificing smoothness across the seam; they force students to understand consonance and dissonance *within* the harmony and melodic design as *approaching and including* the onset of the next one. A preparatory exercise (Ex. 8) provides a contrapuntal framework (a) and asks students to discover where the *Schleifer* (b), *Doppelschlag* (c), and *Schneller* (d) are each appropriate. The same figures also work equally well in triple and compound meters (Exx. 8e and 8f).

[16] I elucidate Wiedeburg's figures in greater detail in a recent article (2010); the present discussion highlights just one of their simplest applications within an improvisational curriculum.



Example 8: Application of *Schleifer*, *Doppelschlag*, and *Schneller*.

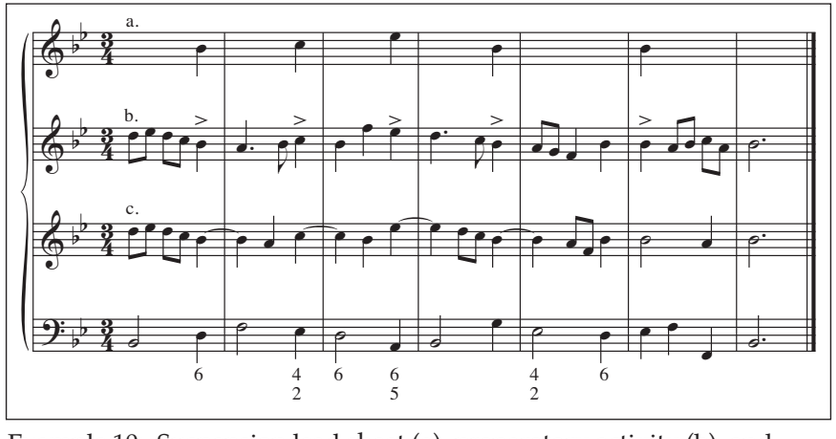
At this stage, a rigid contrapuntal framework would restrict the 4:1 soprano too much; the improviser's mindset must shift from connecting the pitches of a *single,* predetermined soprano to weaving a more fluid path among an assortment of potential ones. Ex. 9 demonstrates an application of the same three melodic figures as in Ex. 8, but it outlines a disjunct series of downbeats that would not be planned in advance (shown on the middle staff). The figured bass is provided without a skeletal upper voice, thereby allowing the 4:1 soprano to span a wider melodic range.



Example 9: Melodic figures spanning a wider range and liberated from a predetermined contrapuntal framework.

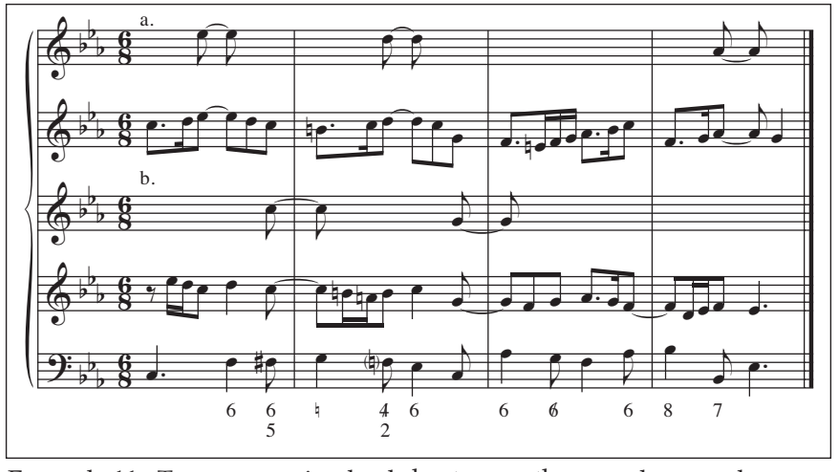
Improvisations will remain sterile if they invariably place consonance on every downbeat, so students must learn to displace these pillars through suspensions and accented passing tones. The

challenge of improvising suspensions is that their preparations must be anticipated without disrupting the surrounding melodic context. After combing models from the literature for typical upper-voice suspensions in two voices (i.e. 4-3 primarily over $\frac{5}{3}$ and ^{7}, 7-6 over ^{6} and $\frac{6}{5}$, and 5-$^{+}$4 over dominant $\frac{4}{2}$), students examine a familiar figured bass for its suspension possibilities and construct a "suspension lead sheet" (Ex. 10a). As they improvise, they play each preparatory pitch exactly as notated and proceed downward from it (Ex. 10b), learning to anticipate where on the keyboard they need to be, and when, in order to prepare a suspension correctly. Finally, they tie the same preparatory pitches into suspensions (Ex. 10c), improvising freely elsewhere.



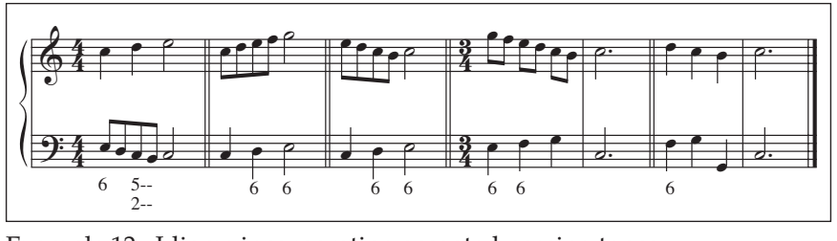
Example 10: Suspension lead sheet (a), preparatory activity (b), and improvisation incorporating suspensions (c).

Eventually, I wean improvisers from the suspension lead sheet by teaching them to see the multiple suspensions latent in a figured bass alone (e.g. trying to prepare the seventh above an upcoming bass note figured with ^{6}, or the fourth above one figured with $\frac{5}{3}$). Example 11 shows a figured bass, two suspension lead sheets (which eventually would be imagined without notation), and a sample improvisation based upon each.



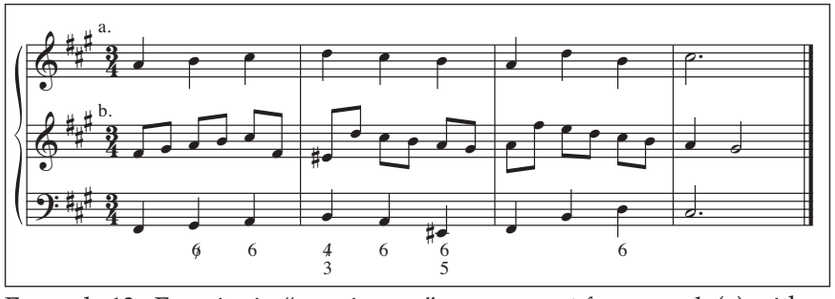
Example 11: Two suspension lead sheets over the same bass, and corresponding sample improvisations.

I spend less time on accented passing tones because, unlike suspensions, their overuse poses more of a threat to harmonic clarity than their underuse does to style. I first teach some relevant idioms (Ex. 12).



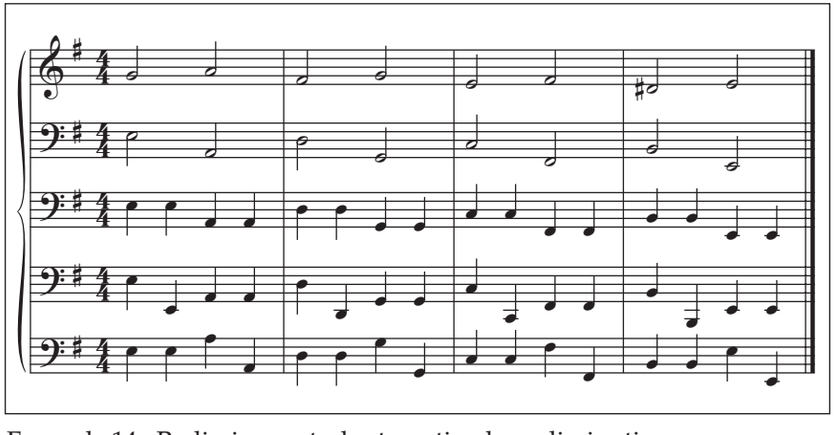
Example 12: Idioms incorporating accented passing tones.

If student improvisations are technically correct, but stale due to lack of dissonance, I provide an entirely consonant piece and ask them to work out a "souped-up" version by incorporating as much accented passing motion as possible, especially in descent. Of course, there are many possibilities, some far more successful than others; students learn to discriminate tastefully between accented passing tones that add interest and ones that obscure the harmony too much. The original (a) and a sample solution (b) appear in Ex. 13.



Example 13: Exercise in "souping up" a consonant framework (a) with accented passing motion (b).

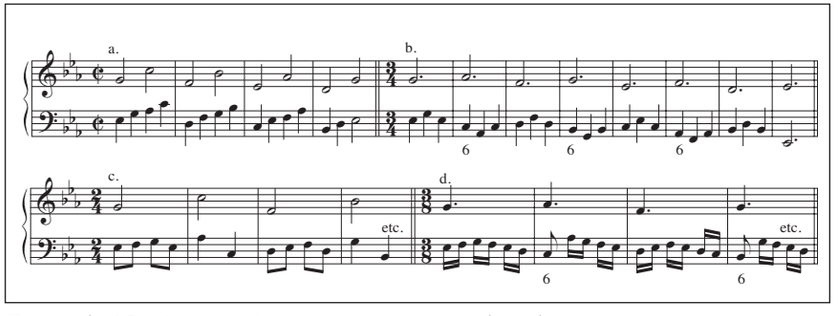
To this point, I have neglected the bass voice in order to demonstrate diminution techniques that are accessible to single-line instrumentalists, vocalists, and non-specialist keyboard players who lack hand independence.[17] Beginners need careful guidance with bass diminutions due to the greater effect of changes to the bass voice (e.g. chordal fifths causing $\frac{6}{4}$ chords). The circle-of-descending-fifths sequence is a convenient testing ground. Example 14 illustrates three combinations of repeated notes and octave leaps intended simply to activate the left hand independently. Even this preparatory exercise generates bass figurations that are ubiquitous in Baroque music.



Example 14: Preliminary etudes targeting bass diminutions.

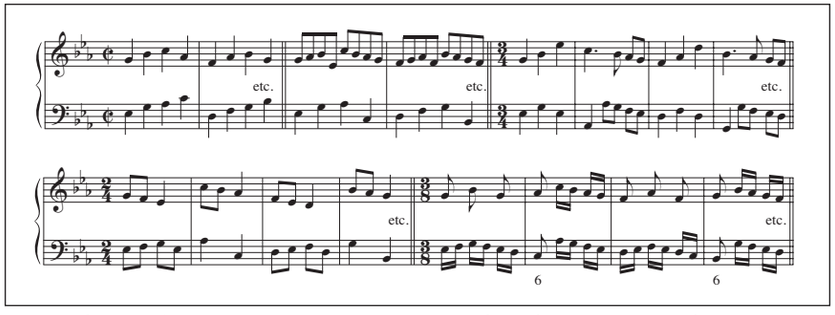
[17] For those on single-line instruments or voice, the focus now shifts to the bass voice alone while the upper voice is played by another student, the instructor, or a recording.

To move beyond purely rhythmic embellishments, students learn to incorporate a particularly chosen secondary bass note, which is always a third away from the primary one (or a sixth in the opposite direction). The root and third exchange (as in $\frac{5}{3}$, ^{7}, $\frac{6}{3}$ and $\frac{6}{5}$ figures), the chordal fifth uses the third as a secondary note (as in $\frac{4}{3}$ figures), and the seventh uses the fifth (as in $\frac{4}{2}$). In simpler terms, the secondary bass note is a third above the primary one for root-position harmonies, and a third below for virtually all others. Example 15 shows an introductory activity that begins with just the primary and secondary pitches (a), then adds more complex alternations (b), and finally features passing motion between the two (c and d). Students learn to conceive of the bass voice in terms of relevant intervallic regions, a third in size, within which elaborations may be added at no cost to harmonic clarity.



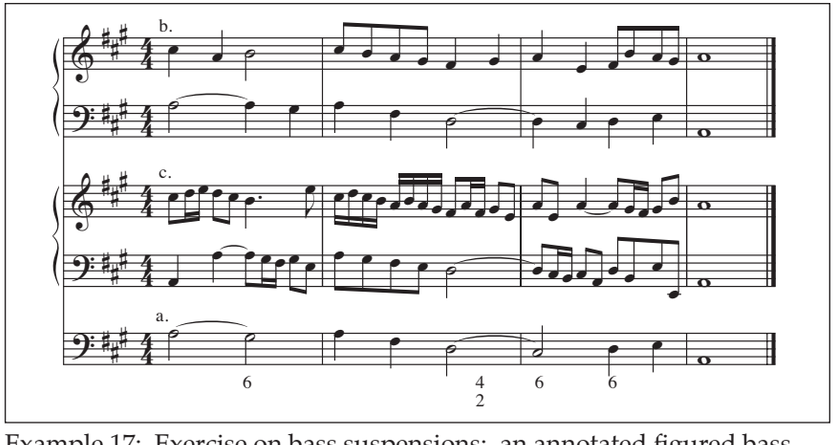
Example 15: Activity incorporating secondary bass notes.

Weaker keyboardists may stop here, but capable students can learn to link bass and soprano through what I call *sympathetic embellishments*. They comb the same sequential progressions for opportunities to add voice exchanges, parallel tenths, and parallel sixths between outer voices. The challenge is to determine where sympathetic embellishments can create a more sophisticated texture; Ex. 16 demonstrates several possibilities.



Example 16: Activity incorporating secondary bass notes and sympathetic upper-voice embellishments.

Finally, I introduce bass suspensions to students who are already in command of upper-voice suspensions and simple bass diminutions. Stepwise bass descents into ^{6} and $^{6}_{5}$ figures (especially over $\hat{7}$ and $\hat{3}$) are the primary opportunities, so students mark these with ties. Example 17 shows an annotated figured bass (a), a simple two-voice realization incorporating bass suspensions (b), and a more elaborate one based upon it (c). Realizations such as these can be worked out in advance to varying degrees; students need not invent something this complex on the spot in order to reap the benefits of generating it at an instrument.



Example 17: Exercise on bass suspensions: an annotated figured bass (a), a simple realization (b), and a more florid version (c).

By the end of this second module, students can convert figured basses and contrapuntal frameworks into idiomatic two-voice counterpoint with an active bass. As a capstone project, they work

in pairs to incorporate ear training into improvisational learning. After working individually on the same short progression, the two students come together, on two keyboards, and improvise a set of 10-12 variations over it. Student A improvises one variation; Student B repeats what Student A has just played and then improvises on the third time through; Student A repeats that and improvises on the fifth loop; etc. I forbid them from writing anything down, so they must learn each other's ideas aurally, which often takes several iterations. The paired practice serves a dual function: it encourages students to share their ideas and thereby develop larger vocabularies, and it teaches them to be responsive and creative in real time as opposed to rehearsing their own ideas repeatedly.

Part 3: Practice Strategies and Classroom Techniques

To supplement the exercises presented elsewhere in the article, this section offers individual practice strategies as well as classroom techniques designed specifically for teaching improvisation in a group setting. All of the classroom techniques are applicable in either a keyboard lab or a standard classroom; in the latter, students perform vocally or on their own primary instruments.

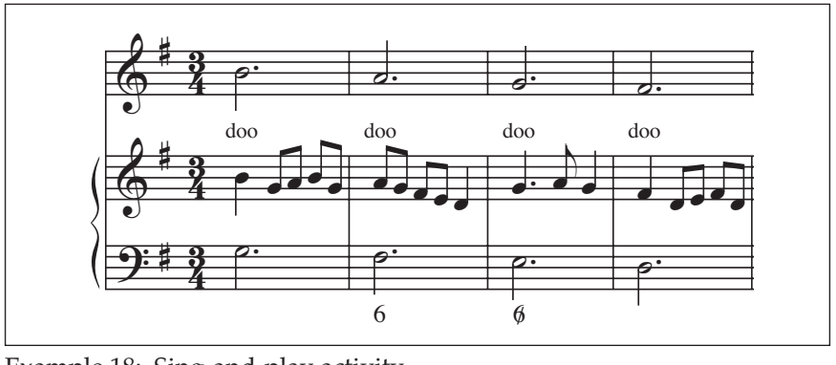
Practice Time. I encourage students to divide each practice session in half, working out of time in the first half to discover and internalize patterns. (For a beginner, a "discovery" might be as simple as the interval between two chord tones, and the diminution options afforded by that distance.[18]) In the second half, they practice in time, with a metronome, to recall and apply the internalized patterns; I suggest looping each figured bass continuously during this time. Novice improvisers are prone to stopping and treading carefully, since they do not trust their instincts or have not developed any instincts to begin with. The equal division of practice time develops both vocabulary, which is assembled out of time, and fluency, which is practiced in time.

Transposition and Variation. While it is beneficial to play in

[18] There is value in asking students to discover these patterns on their own, but many of them lack either the time or the stylistic awareness needed to do so successfully. I often supplement their discovery with either a handout or a recording of sample realizations, much like the examples in this article, which students transpose, vary, and play in other meters.

various keys and meters, the acts of transposition and variation themselves are also tremendous aids to memorization and fluency.[19] It is possible to learn a pattern in one key as specific pitches, but the abstraction required to transpose forces students to think schematically. I often provide a figured bass and a written-out improvisation in one key, but require students to prepare each in other keys and other meters, and to improvise variations beyond the given samples.[20]

Usage of the Voice. For those improvising on any non-wind instrument, the voice can play an important role in the acquisition of improvisational skill. Early on, I ask students to sing one voice of a contrapuntal framework while simultaneously embellishing that same voice on an instrument (Ex. 18); the activity reinforces the presence of the framework even when it is not actually sounding. In addition, the tendency of non-vocalists to preserve a linear framework that is *easy to sing* actually helps them to prioritize stepwise motion beneath the surface of a phrase.



Example 18: Sing-and-play activity.

A more advanced activity involves improvising over a figured bass and immediately singing the upper voice that was just played. This develops a potentially elusive skill: knowing that they will

[19] The importance of these two processes is discussed in virtually every improvisation treatise of the seventeenth and eighteenth centuries, as well as explicated in Aaron L. Berkowitz, *The Improvising Mind: Cognition and Creativity in the Musical Moment* (New York: Oxford University Press, 2010); see, in particular, pp. 39-55.

[20] Transposition is more beneficial by fourth or fifth than by step, since the former forces the music to be regarded functionally rather than merely "sighted" a line or space higher or lower than notated.

need to recall what they improvise, students reckon in real time with the bigger picture of what their line does, rather than working in an entirely moment-to-moment manner.

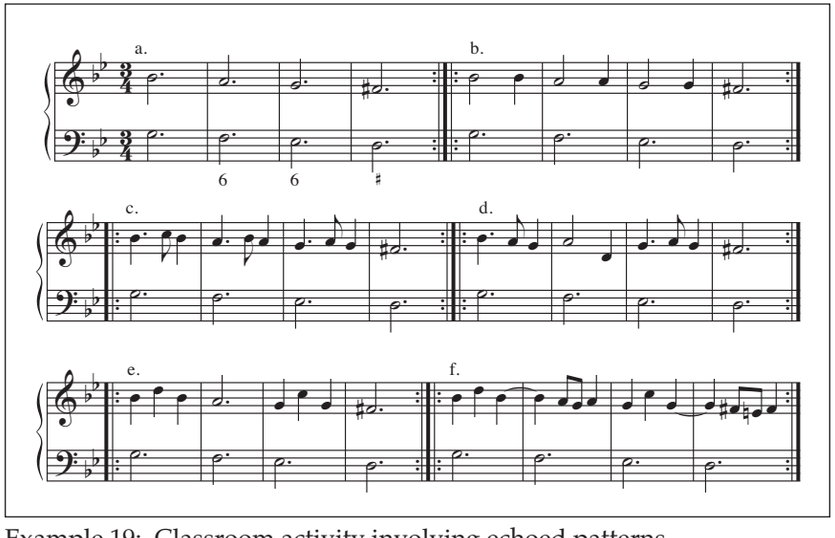
Usage of Notation. An outer-voice "lead sheet" provides a sketch of the large picture of a phrase so that students can develop advance planning and audiation even while they target more local skills such as suspensions and motivic diminutions. However, I discourage students from notating their improvisational brainstorms note for note. This is a tricky matter. On any assignment, I am quite satisfied if they develop realizations at the keyboard, transpose and vary them, rehearse them, and reproduce them for me. While not entirely spontaneous, this shares many of the benefits of improvisation because all of the learning takes place at and with the instrument; it is different from writing out a realization, memorizing it from the score as a concert piece, and reciting it to me in class. The distinction is crucial for our weaker students, who may struggle with real-time improvisation, but can still develop pattern acquisition and fluency if we encourage them to compose (or "improvise out of time") at the keyboard, rather than exclusively with the pencil.

Classroom Techniques for Group Learning. I have taught improvisation both in a keyboard lab (where each student's keyboard can play either into headphones or through speakers) and in a classroom with a single piano. In order to demonstrate classroom techniques that work in both settings, I will discuss motive as a sample topic, which is introduced as students begin to master the techniques in Part 2. The most important element of an improvisation class is the preservation of a steady pulse; it prevents the inefficiency of stopping as well as insists upon fluency and rhythmic playing. Basses played on continuous loop work well for presenting new material and for keeping everyone engaged even if they are not constantly improvising.

Format #1: Echoing (Pattern Acquisition). All students play the bass line continuously throughout the activity.[21] I project each contrapuntal

[21] This assumes a keyboard lab environment; in a classroom, I divide the group in half, with one half responsible for playing or singing the bass line and the other half for participating in the improvisational activity. The class is trained to switch roles instantaneously upon hearing the word "switch," which occurs every four to six times through the ground bass. This way, the bass voice is covered even without a room full of keyboards, and student concentration does not lapse from being relegated to bass-line duty for too long.

framework (Ex. 19a) using PowerPoint; with a presentation remote, I can play along rather than pointing to a handout or erasing and rewriting on the board. I play an upper-voice realization while all students play the bass line; they immediately echo it during the next iteration. Each realization applies a motivically consistent diminution pattern to the projected framework, so students learn to decipher the motive in order to reduce the amount of music to be memorized serially. Example 19 shows a series of five consecutive echo patterns (b through f); realizations d through f require an awareness of consonances beyond those in the framework in order to situate the upward and downward leaps correctly. As students gain confidence, I call on one person (or, for example, the back row) to echo the pattern, and then on the entire class during the third iteration, thereby monitoring student progress more precisely. A yet more advanced variant involves asking one or two strong students to lead the activity; they either prepare the echo patterns in advance or create them on the spot.



Example 19: Classroom activity involving echoed patterns.

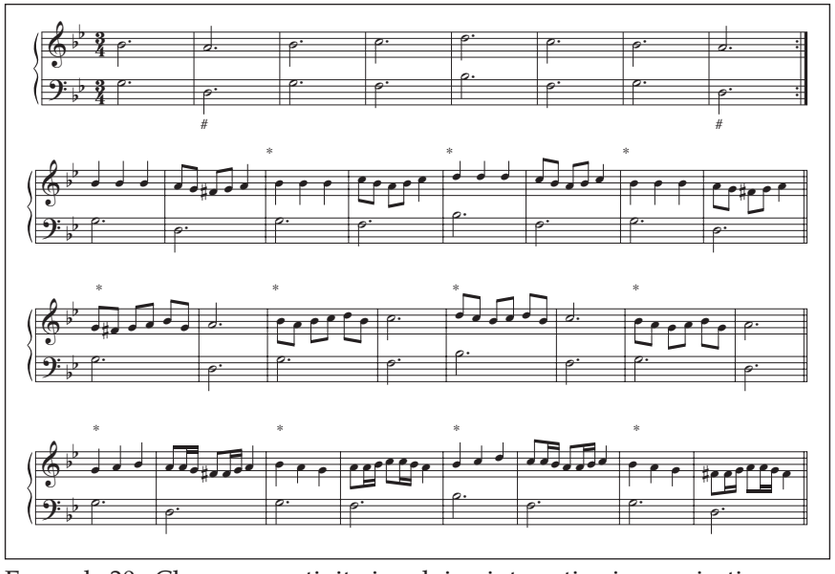
Format #2: Call-and-Response (Interactive Improvisation). Students must learn to see a figured bass as a web of overlapping motivic potentials. I provide an instruction—"Using this figured bass, explore as many motivic possibilities as you can that feature the melodic interval of a third"—which asks them to see the progression

through a third-colored lens. The task is certainly possible in individual practice sessions, but the classroom environment permits a more dynamic and collaborative learning process.

After the instructor or one student improvises over the first measure or two of the bass, a different student immediately takes over and improvises a motivically consistent continuation. Meanwhile, the entire class plays the bass line and attends carefully to what is played, since the next student is identified just a few seconds in advance. (Following the spatial order of student seating works poorly, as students learn to zone out except immediately before they play.) Constraints such as the one above serve to focus the activity.

The aural demands are more complex in call-and-response than in echoing, since students must identify the pattern that is played, map it onto their instruments, and plan how to adapt it to the *different* contrapuntal context of the upcoming passage. In the initial stages, a student begins the improvisation and I play the more difficult role of continuing with their motives; as we progress, the onus is shifted onto them to lead their own activity, with only occasional interjections from me.[22] A thirty-second sample appears in Ex. 20 beneath the contrapuntal framework that would appear on the screen; asterisks and changes in stem direction indicate where a new student takes over.

[22] Call-and-response often morphs into echoing, especially when a student produces a motivic realization that I want the whole class to learn. The opposite is also true when students are keen enough to pick up on a motive that I play for echoing, and begin to play along before I even reach the repeat sign.



Example 20: Classroom activity involving interactive improvisation.

Many more classroom activities are possible, of course, but class time is best dedicated to activities that make use of the large group to learn collaboratively, rather than simply dividing the available time into individual coachings with each student. These coachings are often too short to be productive, and the other students can easily become disengaged from the learning process (particularly *after* their coaching).

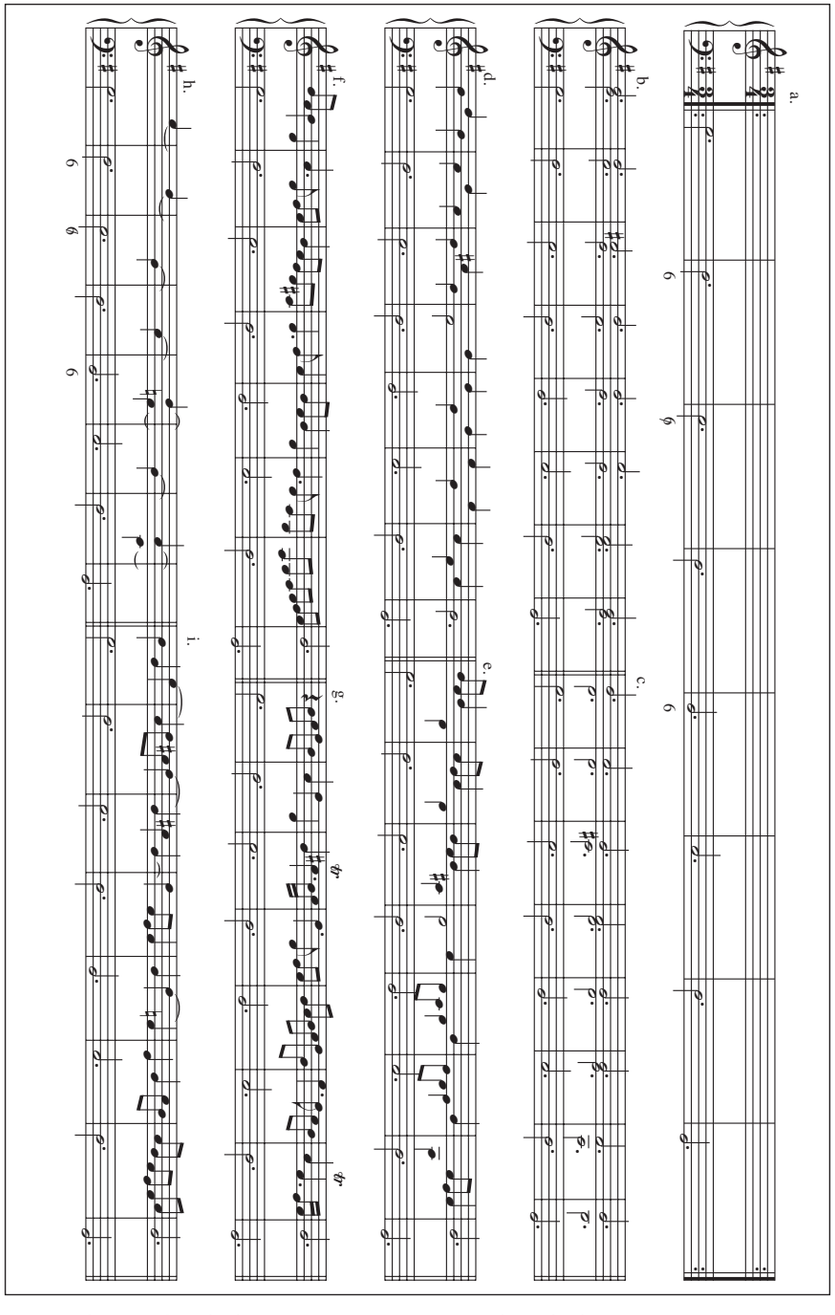
Part 4: Three-Voice Frameworks, Compound Melody, and Motivic Imitation

Adding a second upper voice enables single-line instrumentalists to improvise compound melody—a technique essential to them in particular—and it also equips keyboardists to play in a more sophisticated texture.[23] Two clearly defined upper voices prevent

[23] Since students spend far more time on four-voice part writing than on three-voice counterpoint, it will probably be necessary to provide simple criteria for constructing a good three-voice framework: "After creating the soprano-bass counterpoint, aim in the alto voice for complete triads (or maximally complete seventh chords, omitting the fifth) in balance with maintaining a smooth and singable line." Importantly, the middle voice of three is freer to leap than the soprano is, particularly to preserve complete sonorities or to keep both upper voices playable by one hand.

compound-melodic improvisations from merely arpeggiating in the blind; Exx. 21b and 21c show two invertible options for two voices above the bass given in Ex. 21a. To ensure that students learn these as combinations of three *voices*, rather than as stacks of chords, I ask them to play just the bass and soprano (or, if not on keyboard, just one of the two) while singing the alto. On keyboard, they picture a "thumb voice" and a "pinky voice," separating the two visually and kinesthetically; even some non-keyboard instruments afford this experience (e.g. as an A-string voice and a D-string voice on violin, or as different partials on a brass instrument).

Preliminary exercises build dexterity, first separating the two voices through rhythmic alternation in several meters and permutations (as in Ex. 21d, based upon Ex. 21b), and then adding neighbors to one voice at a time (Ex. 21e, based upon Ex. 21c). Lead sheets (Exx. 21b and 21c) permit students to sense—conceptually, aurally, and instrumentally—the presence of both voices even when only one is sounding. I introduce the metaphor of a juggler trying to keep several objects in the air at once, attending to all in roughly equal amounts without needing to touch more than one at a time. A compound-melodic improvisation is successful insofar as it "re-throws" each voice consistently throughout the phrase.

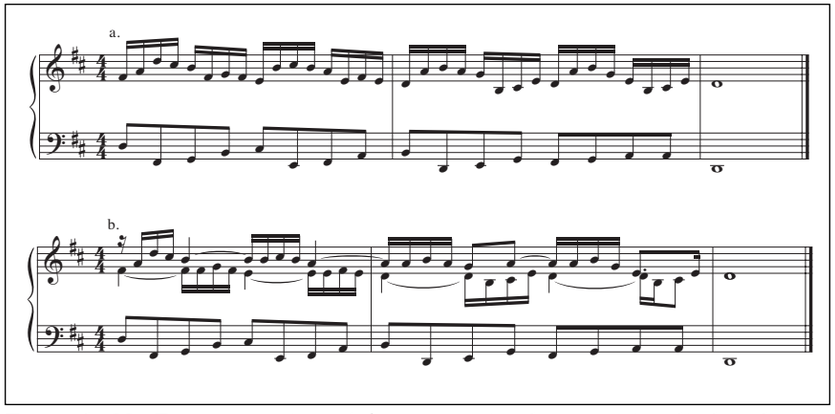


Example 21: Graded exercises in compound-melodic improvisation beginning with a figured bass (a) and two three-voice frameworks (b/c).

Stepwise motion between voices balances the inherently frequent leaps. I teach students to observe not only the actual melodic intervals within each voice (e.g. B-A in soprano, D-D in alto), but also the potential melodic intervals across changes of harmony (e.g. the rising fourth between the alto D4 in m. 2 and the soprano G4 in m. 3). This orientation permits more conjunct improvisations such as that in Ex. 21f. The next step is to alternate between voices less predictably and with more motivic consistency. Imagine improvising something like Ex. 21g while looking at the lead sheet in Ex. 21b: the trick is to leap mainly to and from the pitches of the framework, and to alternate between a segment of the upper voice and a segment of the middle voice. The lead sheet reminds students of where they are headed.

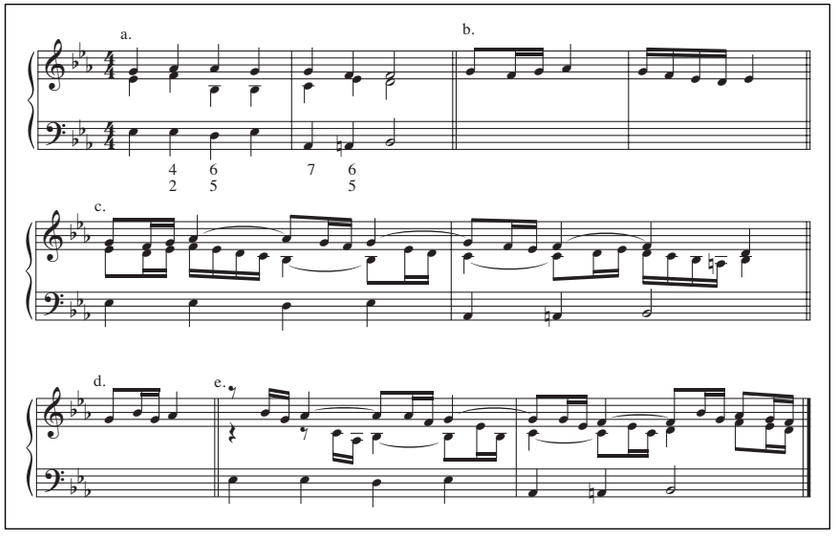
Finally, building on exercises discussed in Part 2, students incorporate implied suspensions into a compound-melodic upper voice. Example 21h provides a suspension lead sheet as before, but now in three voices; students initially play only this scaffolding while singing the longed-for resolutions, and then fill in the rhythmic space without sacrificing the preparation. To produce a texture like the one in Ex. 21i, the procedure is simple: (1) get to one of the preparations in Ex. 21h; (2) immediately leap away from it to a consonant pitch *in the other voice*; (3) return to the suspended voice, either to the resolution right away or to the suspension first. Implied suspensions are subtle, but not difficult to produce if students practice the algorithm of *preparation in voice A—leap to consonance in voice B—resolution in voice A*.

The three-voice techniques that follow are the first ones to be exclusive to the keyboard, but they need not be exclusive to expert pianists; on the contrary, three-voice improvisation is an accessible next step after compound melody. Both techniques employ the same three-voice contrapuntal frameworks, and the familiar mindset of "juggling" two upper voices—preserving both but creating activity in just one at a time—now describes two upper voices that complement each other rhythmically. One voice simply sustains (rather than drops out) while the other is florid. I demonstrate by playing two versions of a phrase for students, saying first that one will be "in two voices" and the other "in three voices" (Ex. 22).



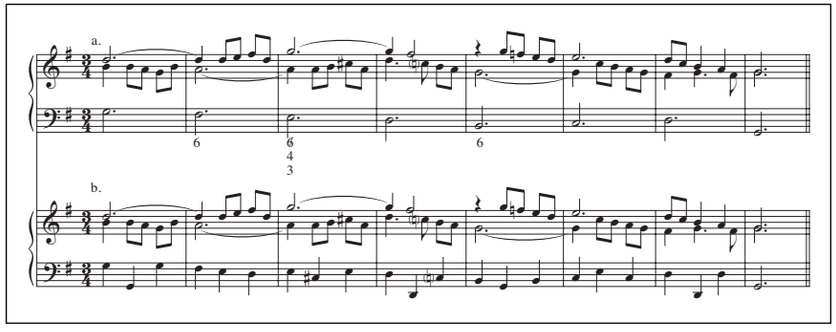
Example 22: Demonstration of the connection between implied and actual three-voice textures.

Two guidelines help to preserve the clarity of a three-voice texture: (1) the same or similar motivic shape should appear in alternation between the two voices, and (2) the two voices may be florid simultaneously *only* when they move in parallel thirds or sixths. Intricate-sounding imitation between upper voices is actually easier to improvise than a haphazard assortment of motivic shapes. Students begin with a notated framework (Ex. 23a) and one or two simple motives (Ex. 23b or Ex. 23d); Wiedeburg's three melodic figures, discussed earlier, also serve well. With some preparation, and some scouring of the progression for possibilities, improvisers follow the two guidelines above to produce realizations such as those in Exx. 23c and 23e.



Example 23: Exercise in improvising two motivically related upper voices above a figured bass.

As students develop comfort with two upper voices, I once again begin to advocate for the contrapuntal equality of the bass voice. While the idea of sympathetic embellishment, introduced in Part 2, is not new, the higher workload of three moving voices necessitates careful practice. As with two-voice textures, the most powerful tools are the secondary bass note, parallel tenths (and sometimes sixths), and voice exchange. I provide a fully notated texture of two florid upper voices over an unelaborated figured bass (Ex. 24a); students enrich the texture by activating the bass voice by means of octave leaps, passing tones, and the strategies listed above. The result (Ex. 24b) is relatively simple to produce, but far more sophisticated than the original.

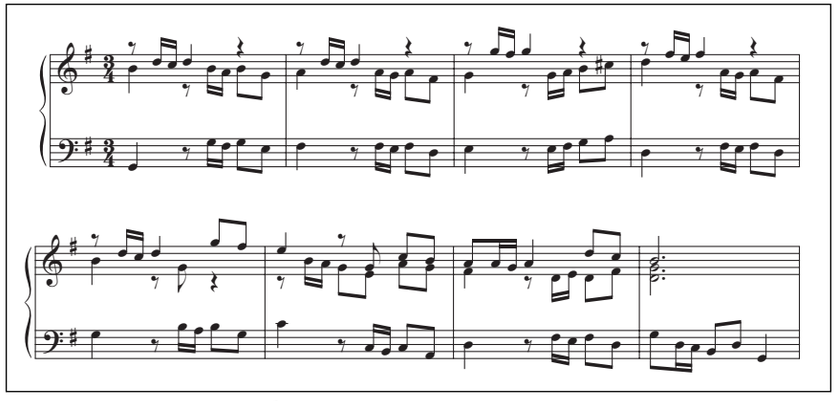


Example 24: Exercise in elaborating the bass of a three-voice texture through sympathetic embellishment.

Simple models from the repertoire can also teach idiomatic three-voice textures, but only if students do more than play them in their original form. I require the improvisers to vary each model and to extract techniques from it to apply to other progressions.[24] Handel's sets of Chaconne variations in G major, HWV 435 and 442, are both accessible and rich. Variation 12 of the latter (Ex. 25) features almost constant parallel tenths between alto and bass and incorporates a single motive into all three voices.[25]

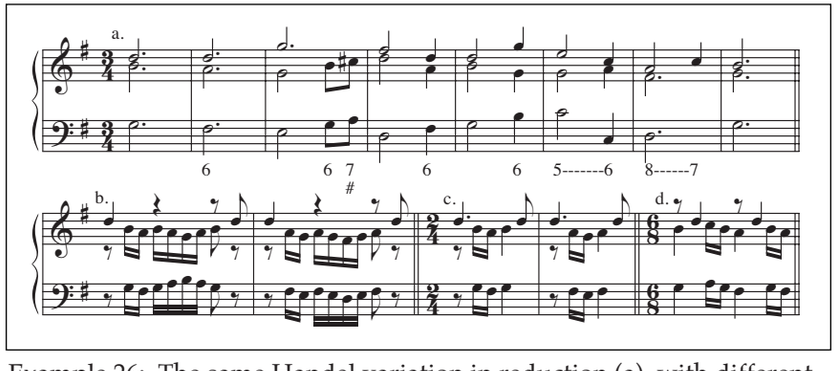
[24] The reader may wonder why repertoire enters the conversation so late. I actually do introduce some two-voice models from the literature earlier on, but have omitted them here for brevity in favor of the more didactic exercises. However, as William Porter argues, there is a considerable advantage to delaying students' engagement with repertoire models until after they have some improvisational skill. It takes some improvisational competence to examine pieces in an improvisationally relevant manner (as opposed to just memorizing excerpts serially). See Porter, "Reconstructing 17th-Century North German Improvisational Practice: Notes on the Praeambulum with a Report on Pedagogy Used in December 1995," *GOArt Research Reports* 2, ed. Sverker Jullander (Göteborg: Göteborg Organ Art Center, 2000), pp. 35-6.

[25] This variation set is a treasure trove of excellent and accessible models for a wide variety of improvisational techniques. See, for example, Variation 43 for a study in two-voice texture and in the use of voice exchange to expand harmonies; Variations 16 and 17 for a demonstration of the role of melodic figures in the creation of a perpetual-motion texture; and Variation 5 for a transparently stratified three-voice texture. Other variations on the same progression by F. Couperin, Purcell, Buxtehude, and J. S. Bach (i.e. the first eight measures of each of the Goldberg Variations) are fertile as well.



Example 25: Handel, Chaconne in G major, HWV 442, *variation 12*.

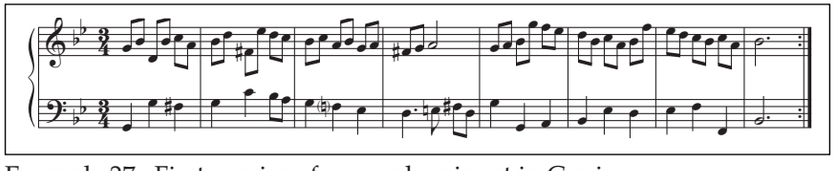
Students play the variation as written and then reduce it to counterpoint that can serve as the basis for other embellishments (Ex. 26a); due to the spiral nature of the curriculum, they are already familiar with this eight-measure progression. Next, they transpose their reductions, and then Handel's exact surface, to other keys. Eventually, they apply a slightly different diminution strategy to the counterpoint (Ex. 26b) and they "play the Handel in $\frac{2}{4}$ and in $\frac{6}{8}$" (Exx. 26c and 26d). The goal of this repertoire modeling is twofold—-to master new techniques, and to develop stylistic awareness through engagement with musical literature.



Example 26: The same Handel variation in reduction (a), with different surface figuration (b), in $\frac{2}{4}$ time (c), and in $\frac{6}{8}$ time (d).

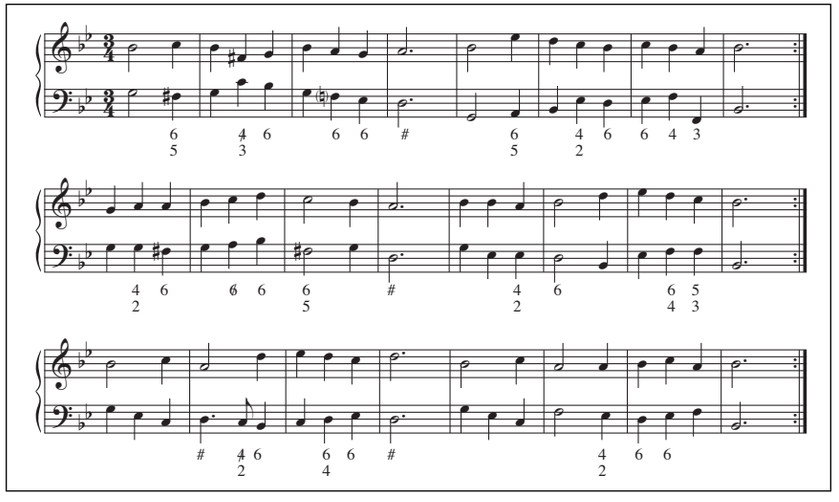
Part 5: More Advanced Techniques

To advance past the techniques discussed so far, students must untether themselves from provided figured basses. This section merely sketches an approach to minuet improvisation that is accessible to the top tier of students who can master the nuts-and-bolts curriculum explained in Parts 1 through 4. The objective is to move beyond varying a contrapuntal framework and actually determine it in accordance with the tonal trajectory of a typical minuet. The simple first reprise in Ex. 27 provides a way to make this hierarchical relationship—the subservience of contrapuntal idioms to the tonal demands of the piece's form—salient to students. They play the reprise and describe what it does, tonally: prolong G minor, reach a half cadence, introduce a modulation to the relative major, and secure a perfect authentic cadence there.



Example 27: First reprise of a sample minuet in G minor.

How else might we reach this same series of tonal waypoints in the same amount of time? I challenge students to assemble, in 1:1 counterpoint, other progressions that would accomplish each of the same four tasks. I encourage them to emulate the motivic sophistication of repertoire models by crafting the second phrase in a way that relates to, or rhymes with, the first one—a challenging task because one phrase modulates while the other prolongs an opening tonic. Example 28 presents two other options underneath a reduction of the original. The first option features a rhyming perfect fourth in the bass (m. 2 and m. 6); the second exceeds the climactic D5 of the first phrase with the E♭5 in m. 7; and the third reharmonizes the B♭4-C5-A4 of mm. 1-2 with a modulatory F♮ in m. 5, followed by an augmented transposition of the bass D3-C3-B♭2 from m. 2. In turn, each of these worked-out paths can be varied by means of the techniques discussed in Parts 1 through 4.



Example 28: Three contrapuntal frameworks accomplishing the same tonal tasks.

To improvise the rest of the piece, students categorize the contrapuntal idioms that they know into the tonal tasks relevant to the form of a minuet: prolongations, half and authentic cadences, modulation techniques (primarily to III in minor and to V in major), and common digression strategies such as dominant pedals and sequences. Each of these categories contains several specific options for each tonal marker in the formal blueprint; the latter shows the location of cadences, modulations, and sequences. Figure 1 provides a specific plan for a 24-measure minuet.[26]

[26] The number of measures is prescribed here not only because symmetrical phrase lengths are normative in minuets, but also because alterations are best learned after the more typical structures are mastered. A similar activity appears, with just an opening contrapuntal framework and subsequent key areas, in Steven G. Laitz, *Skills and Musicianship Workbook to Accompany The Complete Musician*, third ed. (New York: Oxford, 2012), pp. 324-5. I indicate more than just the key areas in Figure 1 because the additional detail (e.g. types of sequences, precise locations of modulations, cadence types) makes it easier for students to assemble sensible phrases; it also demonstrates how accessible an entire binary-form piece is to someone who has mastered a few of each basic type of contrapuntal progression.

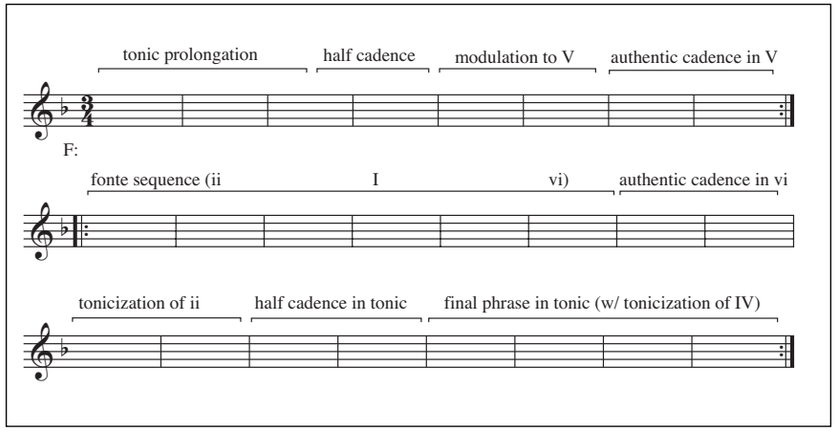
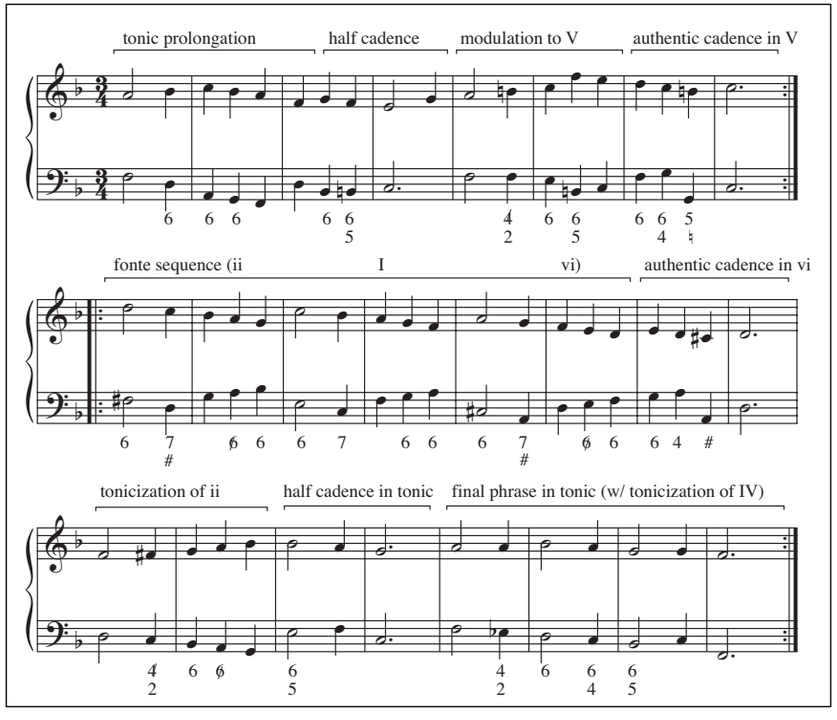


Figure 1: Tonal blueprint for an entire minuet.

At first, I insist that students improvise 1:1 counterpoint without diminution, ignoring the latter so that they can learn to choose progressions that are appropriate to each task. Example 29 presents a sample improvisation within this constraint, which realizes the blueprint in Figure 1.



Example 29: Realization of the blueprint in Fig. 1 in 1:1 counterpoint.

Beyond this improvised framework, it takes only the diminution techniques already mastered in order to create a convincing piece. For greater sophistication, students can rehearse each section of the minuet with different options each time: a *monte* (i.e. ascending-seconds sequence with applied dominants) after the first repeat sign instead of a *fonte* (i.e. descending-seconds sequence with applied dominants), or a cadence in the supertonic in m. 16 rather than one in the submediant, etc.[27]

[27] I explore minuet improvisation in more depth, as well as other techniques relevant to longer-range keyboard improvisation, in another publication (2012).

Conclusion

This article presents a curriculum for teaching Baroque counterpoint through improvisation, beginning with the simplest two-voice textures and progressing through more complex techniques in three voices. While the pedagogical sequence works best on keyboard, everything from Part 1 through the first half of Part 4 is possible on any instrument including voice. Moreover, most of it demands no more technical facility than a diligent non-pianist could develop, so it is suitable as the keyboard component of any course in counterpoint, written music theory, or aural skills.

What is the payoff of redesigning a curriculum to feature improvisational learning? Paradoxically, my students learned to improvise counterpoint more easily than they learned to write it; the quicker method is also the more sophisticated one. The improvisations were creative, not just correct; the improvisers invested themselves in the learning process as something musical and even fun, rather than dismissing it as intellectual "theory homework." I believe that two crucial factors underlay the profound difference in learning between the two courses that I mentioned at the outset: multimodal musicianship and fluency.

In spite of our exhortations, many students struggle through their written assignments in the hallway during the fifteen minutes before class, dissociating the activity from music-making and relegating both the process and the value of their work to the status of an abstract exercise—no more musical than a set of math problems or a Sudoku puzzle. Even the students who do sing or play their work before turning it in are often surprised, and not pleasantly, by the fruits of their intellectual forced labor. Improvisation leaves students no choice but to fuse their aural and instrumental intuitions with their knowledge of how music works, thereby strengthening both.

The second factor is fluency, which can be neither taught nor assessed in written form. An instructor can identify a written assignment as technically correct or not, and as idiomatic or not, but cannot tell whether it was written in just five or ten minutes by a student in command of the style, or ploddingly extricated from a cloud of cerebral sawdust. The first student has, of course, learned more and learned better than the second, even if his or her work has a few more errors. When counterpoint takes too long to write, it is sometimes because students neglect to follow their

aural instincts or because these instincts are not in sync with the style that they are trying to emulate. Other times, students focus on what to avoid (e.g. a doubled leading tone, parallel octaves); they are slowed by the inefficiency of generating countless bad options before stumbling upon one that does not violate a rule. Improvisation teaches only good options, empowering the student to produce something stylistic right away. In other cases, students know what the options are, but they generate them from scratch each time; they have learned the system and its principles, but no useful instances. (One thinks of the student who rediscovers each time, after locating the chordal seventh, that V^4_2 resolves to I^6.) Improvisational pedagogy eliminates the need to choose between teaching accuracy—itself a formidable task in a language foreign to most students—and building fluency.

For at least two reasons, I would not replace all written work with improvisation. First, there are many contrapuntal topics (e.g. fugue, invertible counterpoint, chorale prelude) that are worth teaching even though they far exceed what the majority of my students can learn to improvise in a semester. Secondly, a counterpoint classroom is a great place to teach revision, refinement, nuance, taste, critical evaluation, and so on—important principles that require engagement with counterpoint outside the boundaries of real time. The point is not to avoid manuscript paper altogether, but rather to use it only when it is the most effective teaching tool.

The goal of a counterpoint class is not to train the next generation of Baroque-style composers or improvisers, but the benefits of even basic improvisational skill are real. As soon as the improviser possesses enough skill to imagine generating something idiomatic in real time, a more secure bond forms between that musician and any music—not just improvisations—that he or she hears, studies, or plays. (The latter connection is familiar to any pianist who, in the midst of a momentary memory slip, is able to continue playing convincingly until he or she recovers.) The vocabulary lists and grammar rules that are admittedly easier to teach are not substantial enough to have this kind of impact; students must acquire more than reading knowledge and indeed learn to carry on a fluent conversation, however simple. So, while I probably will not teach counterpoint completely without manuscript paper, I will never again teach it without improvisation.

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