

Modality-based Aural Skills Pedagogy: Ear-training Strategies for Post-tonal and Non-Western Musics

Yayoi Uno Everett

One of the difficulties in teaching ear training at the college level stems from the disparity in students' skills: a percussion major may excel in rhythmic drills and yet be pitch-challenged, while a voice major may recall a tune with ease but may have difficulty notating rhythm. Some experience information "overload:" paralyzed by the amount of information that passes by, they are unable to focus on any one feature. Others make one error in their assessment of interval and end up transposing the whole tune. Most students are aware of their weaknesses but have few clues for overcoming them. These problems become exacerbated with post-tonal music that lacks a referential "do."¹

The pedagogical method proposed here presents a systematic approach for developing cognitive skills in ear-training tailored to the individual's use of *modalities*, Walter Barbe and Raymond Swassing's term for the visual, auditory, and kinesthetic channels through which listeners receive and retain musical information.² According to Barbe and Swassing, individuals develop a definite sense of the modalities

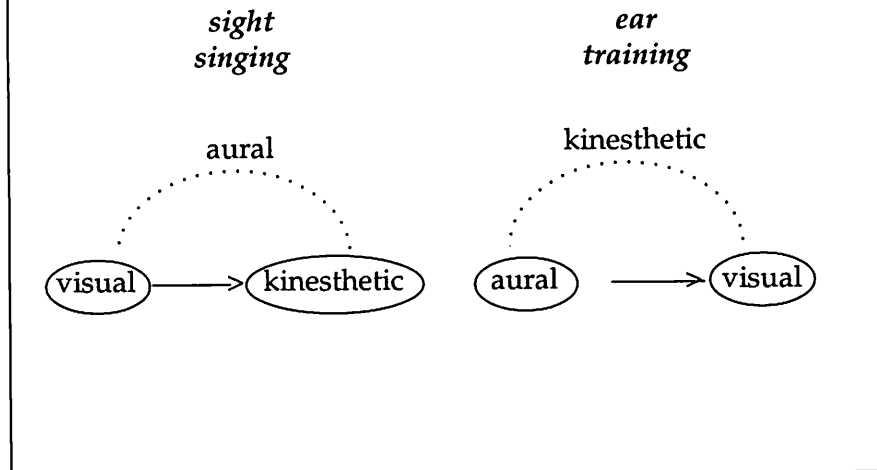
¹This assessment of individual variability in melodic perception of atonal music is discussed by Jeffrey L. Gillespie, "Difficulty Factors in Melodic Perception," *Journal of Music Theory Pedagogy* 7 (1993): 41-53.

²Walter B. Barbe and Raymond H. Swassing, *Teaching Through Modality Strengths: Concepts and Practices* (Zaner-Bloser, 1979). See also Kate Covington, "An Alternate Approach to Aural Training," *Journal of Music Theory Pedagogy* 6 (1992): 5-18; H. Apfelstadt, "Learning Modality: A Potential Clue in the Search for Vocal Accuracy," *Update: Applications of Research in Music Education* 4/3 (1986); Michael Milone, *An Introduction to Modality-based Instruction* (1981); Diane Persellin, "Responses to Rhythm Patterns When Presented to Children through Auditory, Visual, and Kinesthetic Modalities," *Journal of Research in Music Education* 40/4 (1992); Persellin and Pierce, "Association of Preference for Modality to Learning of Rhythmic Patterns in Music," *Perceptual and Motor Skills* 67 (1988).

they rely on for optimal learning in their childhood years: most of us tend to have developed a dominant modality (i.e., visual, aural, kinesthetic) by the time we reach adulthood.³ Based on individual differences in background training, knowledge of grammar, and cognitive skills, it is assumed that Joe, a vocalist who started singing three years ago, requires different modality training for developing aural skills than Jane, a pianist who has been reading music for twelve years. The method presented here involves a three-fold process of identifying and establishing modality channeling through: 1) a diagnostic exam, 2) evaluation and prescription, and 3) graduated ear-training exercises. The musical applications draw from post-tonal, jazz, and ethnic musics that do not necessarily depend on the knowledge of tonal syntax and notational system endemic to the Western classical musical tradition.

Fundamental to the development of aural skills is the process of channeling information from one modality to another: sight-singing requires channeling musical information from visual (input) to kinesthetic (output) modalities, while ear training involves channeling musical information from aural (input) to visual (output) modalities. As illustrated in Figure 1, we do not necessarily channel information directly from input to output modalities. The dotted line illustrates how a third modality can mediate the process of “mapping” musical information from one modality to another. In sight singing, for instance, we transfer visual information into vocalized sounds, but what mediates this process is the aural modality. This intermediary step enables us to discriminate and evaluate the sounds we produce. In ear training, on the contrary, it is possible to channel information directly from aural to visual modalities. Nevertheless, we often sing or

³Barbe & Swassing describe dominant modality as “that channel through which information is processed most efficiently. . . . Through maturation, children’s modalities become integrated as they discover cognitive strategies to transfer information from one modality to another. Besides a dominant modality, many people evidence a secondary modality upon which they can rely when the situation demands it. Secondary modalities are important in the educational process because it is not always possible to capitalize upon a child’s dominant modality. . . . A secondary modality does, however, complement a dominant modality; that is, instead of interfering with the functioning of the dominant modality, a secondary modality enhances it” (p.6).

FIGURE 1: Modality Channeling in Sight singing and Ear training

(internally or externally) to check our retention: we rely on a kinesthetic “replay” of the aural input via humming or clapping to check the accuracy with which we have stored the information in our memory.

Ideally, aural skills training should encompass integration of all three modalities in order to develop a “seeing” ear and a “hearing” eye.⁴ In this article, I present a methodology for incorporating all three modalities in aural skills pedagogy in post-tonal and non-Western musics. The first part of the article focuses on formulating an ear training diagnostic exam designed to identify each student’s modality strength. Individualized strategies can then be formulated to strengthen the student’s cognitive skills and musical memory as needed. The second part of the article introduces parameter-specific drills and graded worksheets for ear training exercises based on a variety of repertoires. When practicing ear-training in class, the

⁴This maxim is reiterated in several textbooks on aural skills. For instance, see the preface to Bruce Benward and Maureen A. Carr, *Sight Singing Complete*, 5th ed. (William C. Brown, 1991), p. xiii.

instructor is encouraged to build fluency in modality channeling by integrating kinesthetic drills with visualization drills, e.g., clapping a rhythm then visualizing the notational pattern, or singing a melodic fragment then visualizing the pitch pattern, as will be demonstrated.

Notation, the primary means by which we conceptualize our hearing and understanding of musical structure, is the final step. In my teaching, I encourage a certain amount of flexibility in the use of notation. Since training skills to “map” sounds into musical objects can be broken down into different levels of specificity, I frequently rely on intermediary symbols and graphic notations to “ease” students into the task of notating music. For instance, I may focus on the contour (shape) of the melodic line prior to discerning pitch or intervallic relationships. I also emphasize non-adjacent note-to-note relationships over adjacent ones.⁵ Especially in atonal musical contexts, students can benefit from various strategies that allow them to listen for long-range connections and repetitions of structural notes. Also musical notations are used appropriate to the musical practice of each culture: for instance, TUBS notation⁶ will be used, in lieu of standard Western notation, for the rhythmic dictation of the *Asante* drumming excerpt.

⁵“Nonlinear” is a term introduced by Jonathan D. Kramer to refer to non-processive, discontinuous, non-adjacent musical relationships. We may listen to music linearly in time, but we can process the information in various nonlinear ways. See Jonathan D. Kramer, *The Time of Music: New Meanings, New Temporalities, New Listening Strategies* (New York: Schirmer, 1988).

⁶For the identification of rhythm and other parameters in non-Western musics, a graphic system (e.g., TUBS notation) may be used in conjunction with conventional Western notation. TUBS (time / unit / box / system) notation employs a series of equidistant boxes to indicate rhythmic placement of notes in time. This system is used as a standard notational device for transcription and transmission of African drumming techniques. See *Worlds of Music*, ed. Jeff Todd Titan (2nd edition, New York: Schirmer, 1992, pp. 88-97).

DIAGNOSTIC EXAM FOR EAR TRAINING

The instructor administers a multiple-choice test at the beginning of the school year to identify the student's modality strength and command of musical grammar. Figure 2a presents a sample question for the diagnostic ear-training exam used at the sophomore level and up. The exam comprises ten to twelve melodic and harmonic excerpts from post-tonal literature with a set of multiple-choice questions. Like most standard college entrance exams, this written test provides an assessment of modality channeling from aural to visual, demonstrating how quickly the student can "map" aural information to musical notation. The student's aptitude is tested in the following categories: rhythmic, metric, contour, and pitch and intervallic recognition.

The questions are graded: they proceed from general to specific and are designed to test different aspects of melodic structure. Notice how questions 1) through 3) focus on general characteristics while 4) through 6) address more specific pitch and intervallic relationships. Based on the results of seven to ten questions similar to those in Figure 2, the instructor can make a fair assessment of the student's abilities. If the student consistently misses 1) through 3), he or she is recommended to enroll in a lower-level aural skills class or sign up for tutoring. Contour identification tests the basic recognition of registral height and direction and, in my opinion, marks the level of minimal competence for entering music majors. On the other end of the spectrum are those who make practically no errors in the diagnostic exam--these students may be placed into an advanced section.

For the majority of students who place somewhere in between, the instructor sets up individual appointments to formulate a prescription for practicing ear-training inside and outside of class tailored to each student's needs. In these individualized sessions, an additional test is administered that isolates where the "stumbling block" occurs in modality channeling with respect to: retention (ability to store musical information in memory), cognition (using

mental constructs to analyze sound relationships), and/or notation (mapping aural cues to visual ones).⁷

Figure 2b shows a two-part sample test that measures the student's ability to retain and recall a melody (aural to kinesthetic channeling) and then convert it to notation (aural/kinesthetic to visual channeling). In the first part the given excerpt is played twice before I ask the student to sing back whatever he or she can recall. The accuracy of the student's delivery can be itemized by calculating the percentage of correctly executed rhythms and pitches.⁸ The second part involves a pass or fail multiple-choice based identification of the correct notation of the same melody. It is designed to target what students are able to identify with respect to pitch, rhythmic, and intervallic characteristics of the melody. Space is allocated at the bottom of the page for comments on the student's execution.

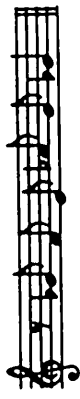
Based on this two-fold diagnostic process, I have included an evaluation and prescription for two undergraduate students at the University of Colorado at Boulder (see Figure 3). Renee (pseudonym) is a double major in flute and engineering. She excels in written theory and has excellent cognitive skills. Her scores (to the left) show basic command of rhythm, meter, and contour identification. Nonetheless, she displays a consistent tendency to

⁷While the listening experience is holistic, the mind can only process one stream of information at a time. See James Tenney, *Meta+Hodos and META Meta+Hodos: A Phenomenology of 20th-century Musical Materials and an Approach to the Study of Form*, 2nd ed. (Oakland, CA: Frog Peak Music, 1988). Meta+Hodos represents one of Tenney's earlier attempts to account for the perceptual organization of musical events based on the principles of Gestalt psychology. He proceeds to show how musical events can be partitioned in different ways with respect to each *parameter* or *dimension* according to the principles of proximity and similarity. For a more comprehensive discussion on musical perception and mental representations of musical relationships, see David Butler, *The Musician's Guide to Perception and Cognition* (New York: Schirmer, 1992) and Jeanne Bamberger, *The Mind Behind the Musical Ear: How Children Develop Musical Intelligence* (Cambridge: Harvard Press, 1991).

⁸One "false" start is allowed in the student's execution. This test is similar to the one that is currently used to measure musical skills in the GRE revised music test.

FIGURE 2A: Sample Diagnostic Exam in Ear Training (sophomore level)

tune:



adapted from Charles Ives: "Like a Sick Eagle"

1) rhythm.
(s = short;
l = long)

a) s s s s l b) s s l l l c) l s s l s l d) s s s l s s

2) likely meter:

a) 2/4 meter b) 6/8 meter c) 3/4 meter d) none of the above

3) melodic contour:






a) major 2nd b) minor 2nd c) minor 3rd d) none of the above

4) the interval that recurs most often is:

a) major 2nd b) minor 2nd c) minor 3rd d) none of the above

5) the interval between the 1st and 4th note is:

a) major 2nd b) minor 2nd c) minor 3rd d) none of the above

6) beginning pitch recurs at:

a) 4th note b) 5th note c) 6th note d) none of the above

FIGURE 2B: Assessment of Melodic Retention & Notation Identification

1) **melodic retention** (aural → kinesthetic): sing back the following melody in tempo after two hearings. Accuracy is measured in percentage by the number of correct pitches and rhythms delivered divided by the total number of pitches and rhythms involved.

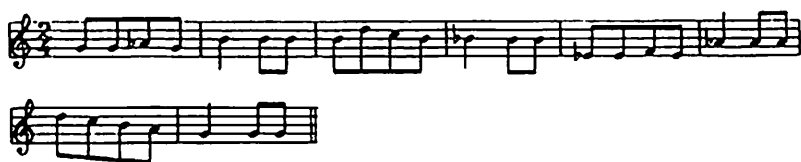
[recorded melodic excerpt: Bartók, *Mikrokosmos*, vol. 15 (mm.5-12)]

Accuracy in pitch retention: _____ %

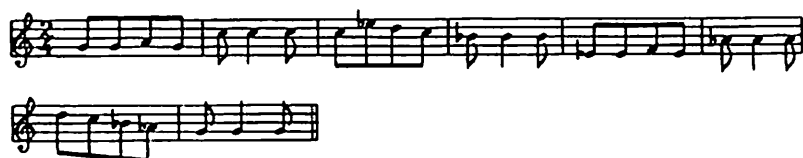
Accuract in rhythmic retension: _____ %

2) **notation identification** (aural/kinesthetic → visual): listen to the melody one more time and identify which one of the four patterns shows the correct notation of the melody.

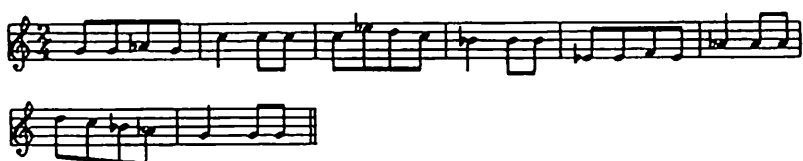
a)



b)



c)



d)



Comments:

FIGURE 3: Sample Evaluation and Prescription

<i>subject I: Renee</i>			<i>major: flute</i>			<i>subject II: Guy</i>			<i>major: voice</i>		
<i>status: junior</i>						<i>status: sophomore</i>					
<i>diagnostic exam</i> (itemized score)						<i>diagnostic exam</i> (itemized score)					
1) 100%	2) 100%	3) 100%				1) 90%	2) 80%	3) 95%			
4) 86%	5) 60%	6) 55%				4) 60%	5) 58%	6) 42%			
<i>assessment of melodic retention & notation ID</i>						<i>assessment of melodic retention & notation ID</i>					
<i>melodic retention: 55%</i>						<i>melodic retention: 94%</i>					
<i>notation ID: a) Fail</i>						<i>notation ID: d) Fail</i>					
<i>comment: she chose one with the correct rhythm but incorrect intervals</i>						<i>comment: he chose one with incorrect rhythm and intervals</i>					
<i>self-evaluation: "I can't remember more than three or four notes at a time and frequently end up transposing melodies by step."</i>						<i>self-evaluation: "I can sing back any melody with relative ease, but have difficulty translating it to notation. Rhythm is especially difficult."</i>					
<i>prescription:</i>						<i>prescription:</i>					
strengthen aural —> kinesthetic channelings and establish long-range, nonlinear hearing. (proceed to exercises comparable to Fig. 5)						strengthen kinesthetic —> visual channeling through notation mapping drills (remedial drills necessary prior to introducing regular exercises)					
1) begin each ear-training exercise by vocalizing the melody repeatedly to improve retention.						1) rhythm mapping drills (see Fig. 4a);					
2) write out rhythm above the staff line;						2) pitch segment mapping drills (see Fig. 4b);					
3) graph contours of pitches within each phrase;						3) combination of 1) & 2) up to six note segments;					
4) stake out the highest and lowest notes within each phrase;						4) metric identification drills;					
5) circle any repeated pitches that occur;						5) follow prescription for Renee from 2) to 7) in proceeding to exercises comparable to Fig. 5.					
6) identify adjacent and non-adjacent pitch and intervallic relationships among structurally salient notes;											
7) convert to standard notation.											

transpose the melody up or down midway by focusing too much on note-to-note (adjacent) pitch relationships. This is reflected in the significant “dip” in the percentile of correct answers in parts 5) and 6) of the written exam that deal with long-range pitch and intervallic relationships. As shown by her score (54%) for melodic retention, her main stumbling block is pitch retention. Her failure in notation identification stems from her inability to retain pitches and process linear intervals quickly enough. As a flautist, she is used to reading music, but *not* accustomed to actively singing or memorizing the tune. Individualized recommendations for her therefore include beginning her practice each time with vocalization drills to improve pitch retention.⁹

Guy, on the other hand, is a gifted tenor who can sing back any given melody like a parakeet, but he has an enormously difficult time translating aural output into mental constructs and notation. The written exam shows how he can identify relative lengths of notes (question 1) or shapes (question 3), but not in terms of the specific intervals or relationships. Notice how his high score for melodic retention (95%) does *not* translate automatically into correct identification of the melody in its notated form. He chose d) under Figure 2b which demonstrates that he can neither translate the rhythm nor the pitch into standard notation. Due to his training as a singer, based exclusively on channeling from aural to kinesthetic modalities, the channeling from aural to visual area has not been established. The strategy that I’ve therefore developed for him involves establishing and reinforcing the aural to visual channels through *notation mapping* drills that are designed to “ease” him into

⁹The instructor should also incorporate active vocalizing as a measure of musical retention. Vocalizing allows the students to participate physically in the reproduction of sound as well as to reflect on the tune mentally. External vocalizing, nonetheless, should be alternated with silent vocalizing (relying on the “inner” ears). Also see Michael L. Friedmann, *Ear Training for Twentieth-Century Music* (New Haven: Yale University Press, 1990). In his opening chapter, “Calisthenics,” Friedmann presents a systematic procedure for vocalizing post-tonal melodies: 1) sing by imitation, 2) sing spatially adjacent pitches, 3) memorize. He also discusses techniques for giving dictation with or without singing.

the task of notation through gradated levels, as will be demonstrated.

The purpose of the diagnostic exam and evaluation is to encourage students to discover their own paths toward improvement by: 1) recognizing their dominant modalities, and 2) developing systematic strategies for overcoming “blocked” areas in modality channeling. The next step in the process is to introduce various “mapping” strategies to establish proper channeling from aural to visual modalities in ear-training drills and exercises.

FORMULATION OF EAR-TRAINING DRILLS AND EXERCISES

The following drills and exercises demonstrate some of the strategies I have developed for ear training, specifically designed to enhance mapping musical information to and from visual (notation) to aural modalities. The exercises are designed for the sophomore level and up. I will allude briefly to a few parameter-specific notation mapping drills I regularly perform as warm-up exercises preceding dictation.

Rhythm Mapping Drill (see Figure 4-1)

A list of possible rhythmic subdivisions of a beat (labeled a, b, c, etc.) is presented to the students. The instructor plays a permutation of four to six rhythmic groupings and asks all of the students to sing or clap the rhythm, then asks a student to identify the series (by label). The student is then asked to improvise another series and ask another student in the class to identify it. The same template can be used to teach rhythmic subdivisions within any simple or compound meters. This exercise is designed to develop aural to visual “mappings” of rhythmic subdivisions within a beat, so that when they hear a pattern of dotted-eighth, sixteenth, eighth notes, students can begin to visualize the pattern mentally as a whole. For singers like Guy, who “freezes” because he is unable to process rhythm using notation, this exercise provides a valuable tool for conceptualizing rhythm always as a pattern within a beat.

At the next stage, I move on to a technique called “imaging,” where I play the same rhythmic patterns and test to see if students can visualize these patterns in their heads *without* the template (the template, which served as a “training wheel,” eventually needs to be internalized). Then I build on this strategy by presenting rhythmic patterns in progressively longer contexts, involving metric identification (with this specific example I may alternate between 6/8, 9/8, and 12/8 meters). I also teach syncopation using this method, first by leaving out the ties, and then putting in the ties, to reinforce aural and notational mapping of rhythm.

Pitch Board Drill (see Figure 4-2)

I frequently begin the class by holding up in front of the class a five-foot board that lists the chromatic pitches denoted by letter names. To encourage students to develop relative pitch, I usually begin by asking the class to recall and sing concert A. Then I “hop” around on the board from one letter to another, making students sing the next note that I point to. This warm-up exercise is used to drill interval patterns that will be reinforced later in the context of ear training or sight singing. One variation is to have a student sing a melodic segment on a given note and have the rest of the class identify the sequence on the pitch board. The instructor can always build on the level of challenges involved. For example, students might be asked to sing a series of intervals up or down from a given note, then asked to identify the pitch sequence on the board.

Pitch Mapping Drills (see Figure 4-3)

A list of six to ten three-note pitch segments is presented to the students. The instructor begins by singing or playing one segment, asks the student to sing it back (call and response style), and then asks them to identify where the segment is found on the template.¹⁰

¹⁰These segments usually are extrapolated from sight singing material and feature a particular modal collection of pitch-class set.

FIGURE 4: Notation Mapping Drills

4-1: sample rhythm mapping drill (for compound meters)

a) b) c) d) e) f)

g) h) i)

4-2: pitch board drill.

F# G# A# C# D# F# G# A# C# D#
 F G A B C D E F G A B C D E F
 Gb Ab Bb Db Eb Gb Ab Bb Db Eb etc.

4-3: pitch mapping drill (3-note segments).

sample 1

a) b) c) d) e) f)

sample 2

a) b) c) d) e) f)

4-4: combination drills (3-note segments).

a) b) c) d) e)

The students are encouraged to find the correct segment first by identifying the general contour of the segment, then by identifying the intervals heard.

The instructor then sings or plays the same segment, segues into another segment, and asks the student to sing again. One variation of this technique which never fails to “tweak” the students’ attention involves what I call “morphing:” I begin with a segment, and transform the segment one note at a time into another segment on the template; the students are asked to sing the segment after each transformation. Then I ask a student to identify the segment it changed to and also to recall the exact sequence in which the notes have been changed in the process. This particular exercise is intended to build pitch and intervallic retention. At the next level, I remove the template and ask students to identify similar three-note pitch segments aurally by letter names (given the starting pitch), expanding the pitch segments up to six notes. Figure 4-4 presents a variation of this exercise where the pitch segments are combined with variable rhythms.

Dictation in Context Exercises (see Figures 5-7)

After the initial drills and warm-up exercises, I proceed to ear-training dictation in a musical context. The melodic excerpts are drawn from post-tonal musical repertory and include examples of modal, atonal, twelve-tone, and basic jazz idioms. Following Wittlich and Humphries, I advocate the importance of contextual ear training: whenever possible, melodies are given in context of accompanying parts (with varying timbres and musical textures).¹¹ For practice sessions, I initially start out with stratified worksheets as shown in Figures 5-7: the level of specificity increases as one proceeds to the bottom of the page. Steps 1 and 2 isolate the rhythmic and metric structure: I ask the students to arrange the notes spatially within each measure, then convert them into standard notation. Step 3 isolates the pitch contour (relative height) to make students observe the shape of the melodic line. I often attach leading

¹¹Gary E. Wittlich & Lee Humphries, *Ear-Training: An Approach through Musical Literature* (San Diego: Harcourt Brace Jovanovich: 1974).

questions that encourage students focus on non-adjacent pitch and intervallic relationships, depending on the contextual importance and aural salience of notes within the phrase.¹²

To accommodate students with varying levels of speed and fluency, the worksheet presents a flexible range of material to provide challenges for all (for instance, the gifted student may skip Steps 1 and 3, and go directly to Steps 2 and 4). Figures 5-7 presents three melodic and rhythmic excerpts I have used successfully in class. Both the worksheet and a solution key are given. Melodies are played from recordings, then subsequently reinforced at the piano or at another instrument. I test the students' aural retention by having them sing back the melody, and clap or "chant" the rhythm on a given syllable (e.g., "tak") after every other hearing.

Sample Worksheet No. 1 (Figure 5)

Arnold Schoenberg, *Piano Concerto*, op. 42, I: mm.1-8

I begin by playing a recording of the opening of this piano concerto two times. In the second hearing, I ask the students to clap what they construe as the basic pulse in the piece. Then I proceed to play just the piano part (at a rate slower than the performance tempo) and have them write out note entries spatially within each measure by

¹²In post-tonal music, devoid of harmonic hierarchy, context determines the aural salience and structural weight of notes. It may be useful to encourage students to discern the particular criteria that determine aural salience in a given melody; the teacher can pose questions such as "what notes stick out and why?" The theory of stream segregation (when a melody is heard dividing into separate voices and when it is heard together) is also a useful concept to explore. See William M. Hartmann & Douglas Johnson, "Stream Segregation and Peripheral Channeling," *Music Perception* 9/2 (1991):155-184. Their study demonstrates that stream segregation—the extent to which polyphonic melodies can be segregated—depends on two factors: restriction of frequency range and spatial localization (left or right). If the melody has strong metric accent, one can institute a "downbeat" game where the students have to discern intervallic relations between successive notes that fall on the downbeat. The instructor can play the melody "as is," while the students sing only the notes on the downbeat.

FIGURE 5a: Ear-training sample worksheet #1

step 1: Write out note entries spatially using "x": indicate the number of pulse per measure. Below each note entry, indicate the relative length of the note with s = short, l = long.

2

x

step 2: Given the upbeat = eighth note, transcribe the rest of the rhythms and assign the appropriate meter signature in the space shown below.

FIGURE 5a: (continued)

step 3: Draw the contour of the next three notes, followed by the next four notes, etc. Where is the highest and the lowest notes found? Identify the interval between the highest and lowest notes. Identify intervals and pitch relationships. Proceed with mm. 5-7 in the same way.



step 4: Proceed to write out the melody in standard notation. Supply the appropriate meter signature. For advanced students, fill out the missing bass notes (circled area) in the accompanying voice.

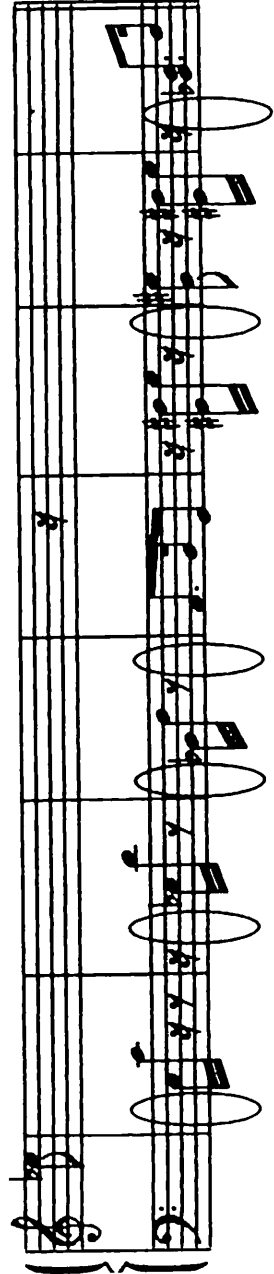


FIGURE 5b: Ear-training sample worksheet #1 (KEY)

step 1: Write out note entries spatially using "x": indicate the number of pulse per measure. Below each note entry, indicate the relative length of the note with s = short, l = long.

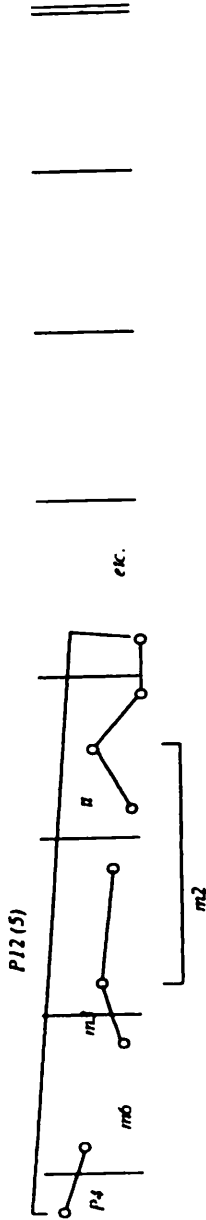
[illegible]

step 2: Given the upbeat = eighth note, transcribe the rest of the rhythms and assign the appropriate meter signature in the space shown below.

The first system of musical notation for 'The Rose Tree' consists of two staves. The upper staff is a treble clef with a key signature of one sharp (F#) and a 2/4 time signature. It contains a melody of eighth and sixteenth notes. The lower staff is a bass clef with a key signature of one sharp (F#) and a 2/4 time signature. It contains a bass line of eighth and sixteenth notes. The system ends with a double bar line.

FIGURE 5b: (continued)

step 3: Draw the contour of the next three notes, followed by the next four notes, etc. Where is the highest and the lowest notes found? Identify the interval between the highest and lowest notes. Identify intervals and pitch relationships. Proceed with mm.5-7 in the same way.



step 4: Proceed to write out the melody in standard notation. Supply the appropriate meter signature. For advanced students, fill out the missing bass notes (circled area) in the accompanying voice.

Andante

The musical score is written on a grand staff with two systems of staves. The first system consists of a treble staff and a bass staff. The second system also consists of a treble staff and a bass staff. The music is in 4/4 time and features a variety of note values, including eighth, sixteenth, and thirty-second notes, as well as rests. The tempo is marked 'Andante' and the dynamics include 'p' (piano) and 'f' (forte). The score is enclosed in a large brace on the left side.

placing an “x” wherever they hear a note entry in the melody. They are asked to clap the rhythm and visualize the note entries on paper. Based on the spatial location of “x’s” and pulses per measure, they are then asked to determine the pulse organization of the piece (in 2, 3, or 4). In Step 2, they proceed to transcribe the rhythms in the appropriate meter, given eighth note as the duration of the beginning upbeat. For those who are rhythmically-challenged, it is possible for them to look at a template of rhythmic subdivisions (see Figure 4-1) to reinforce the aural/kinesthetic to visual mapping of notational symbols within the 3/8 meter.

In the next stage (with rhythmic framework established), I set out to play the left-hand accompaniment while making the students sing the melody in *karaoke* style. Since atonal melodies are difficult to retain, most students struggle to remember even the first four or five notes. Instead of focusing on pitch or intervallic relationships right away, I have them draw the contour of the first phrase as shown under Step 3. For this melody, I have them draw the contour of the next three notes, followed by the next four notes. If there are repeated notes, I ask them to keep the contour line level. To strengthen the recognition of non-adjacent pitch relations, I may ask students to locate the highest and lowest notes of the phrase within mm.1-4. Most of them recognize that the last note of the phrase sounds the lowest. At this point, I make them sing and hold on to the last note, then ask them to “recall” the first note and figure out the intervallic distance between the first and last notes of this phrase. I find that this strategy of figuring out the outer intervals of a phrase (perfect 12th, in this case) helps to eliminate tendencies to transpose the melody. After the contours are specified graphically, then the students are encouraged to identify other aurally salient adjacent and non-adjacent intervals. Since the perception of aural salience may vary from one individual to another, the instructor may begin by directing the students’ attention to specific intervals, e.g. to the tritone between the fifth and sixth notes, and the semi-tone between the highest notes of the second and third contour segments.

Only after the contour and intervallic relationships are mapped out are the students allowed to write out the melody in standard notation, where the structural information laid out under Step 3 is used to guide the transcription process. For those who are at an

advanced level, I usually include additional tasks, such as filling in the missing bass notes in the accompanying voice (as shown by the circled areas within Step 4).

Sample Worksheet No. 2 (Figure 6)

Charlie Parker, *Au Privave*

I play a recording of this “catchy” jazz melody at a “fast” swing tempo a few times with the students tapping on beats 2 and 4. Then they are asked to sing whatever they can recall of the first four measures of the melody, as they continue to tap beats 2 and 4. Even if they cannot reproduce the exact pitches of the tune, they are encouraged to recite the rhythm until accuracy is achieved. The instructor can also adopt a “call and response” approach by singing the head of the tune (first four notes) and making the students respond by singing the next four notes, and so forth. To avoid overemphasis on beats 2 and 4, the students can also tap beats 1 and 3 in one hand with lighter strokes while tapping beats 2 and 4 with the other hand with heavier strokes.

In the next stage, I shift their attention to Step 1 of the worksheet where they have to translate the kinesthetic action of tapping beats into visual markers, here the arrows that move from left to right on the page. For those who are rhythmically-challenged, I start out by asking them to place an “x” on the sheet wherever they hear a note coinciding on beats 2 and 4 (the upward moving arrows) as they sing the rhythm. Then I ask them to do the same for beats 1 and 3. They should have placed “x” on beats 1, 2, and 4 in the first measure, on beats 1 and 4 in the second measure, and on all beats in the third measure. Any subdivision (eighth note “swing” rhythm) within the beat can be notated at this stage as “-” as shown in the key. Then I isolate the last measure and call attention to how the note entries fall between beats and, in effect, “anticipate” beats 2 and 4. These offbeat entries are marked as “x” followed by an inverted arch, as shown. The students are then asked to figure out how the third note offbeat entry anticipates a beat in like manner within m.2. Finally, under Step 2, they are asked to transcribe the rhythms (using swing eighth = straight eighth) in 4/4 meter.

FIGURE 6a: Ear-training sample worksheet #2

step 1: Write our rhythmic entries spatially using "x."; begin by placing "x" wherever you hear entries falling on beats 1 & 3, and then on 2 & 4. Indicate entries that "anticipate" beats 2 or 4 with "x" (8th note upbeat). Do likewise for entries that "anticipate" beats 1 or 3.

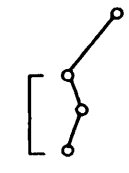
435:

step 2: write out the rhythm in 4/4 using standard notation. Place > mark on notes that are accented.

$\frac{1}{2}$

FIGURE 6a: (continued)

step 3: Write out the contour of every FOUR notes (except for three notes in the last measure). Bracket any repeated pitches as shown below. Figure out the intervallic relationship between the head notes of each four-note contour segments.



step 4: transcribe the melody in F major in the staff line given below. For advanced students, write out the harmonic changes below the staff line and compose a walking bass to accompany the melody.

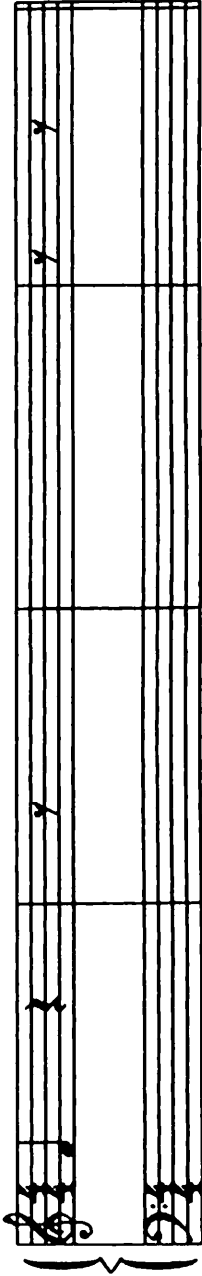


FIGURE 6b: Ear-training sample worksheet #2 (KEY)

step 1: Write out rhythmic entries spatially using "x": begin by placing "x" wherever you hear entries falling on beats 1 & 3, and then on 2 & 4. Indicate entries that "anticipate" beats 2 or 4 with "x" (8th note upbeat). Do likewise for entries that "anticipate" beats 1 or 3.

2 & 4's:

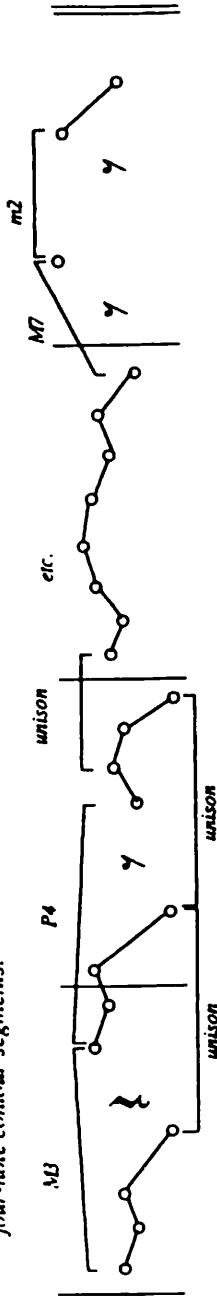
↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑

step 2: write out the rhythm in 4/4 using standard notation. Place > mark on notes that are accented.

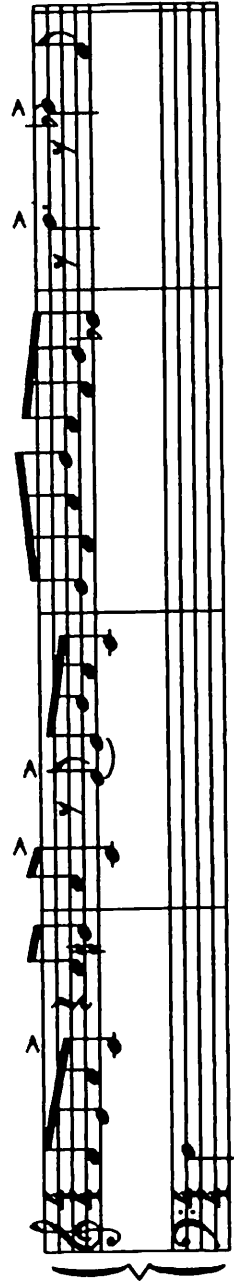
↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑

FIGURE 6b: (continued)

step 3: Write out the contour of every **FOUR** notes (except for three notes in the last measure). Bracket un-
repeated pitches as shown below. Figure out the intervallic relationship between the head notes of each
four-note contour segments.



step 4: transcribe the melody in F major in the staff line given below. For advanced students, write out
the harmonic changes below the staff line and compose a walking bass to accompany the melody.



As in the Schoenberg example, the pitch patterns are first graphically illustrated in terms of relative contour (low and high) under Step 3. By now, working strictly from memory, the students are asked to draw the shape of the contour of each melodic segment separated by a rest. This strategy should help them notice the contour repetition between the first four notes and the next four notes. In drawing the contours, they should pay attention to the relative height of the head note of each contour segment of four notes: the head note of the second melodic segment is higher than that of the first, but what about the relationship of the head note of the third contour fragment to the first? By making them sing the successive intervals formed between the *head* notes of each four-note contour segment, they should notice that the head note of the third segment is a semitone lower than that of the first, and so forth. After reinforcing non-adjacent intervallic relationships in this way, the students are encouraged to figure out other salient intervals between or among contour notes. Finally, in Step 4, they are asked to transcribe the tune in standard notation. The advanced students or jazz majors may write out the harmonic changes and a walking bass to go with the tune.

Sample Worksheet No. 3 (Figure 7)

Kete - Adinkra (Asante royal music of Ghana).¹³

In this excerpt from the *kete* piece associated with the ceremonial musical tradition of Akan people, the TUBS notation is introduced to notate the polyrhythmic relationships among the three ostinati instruments (the master drum part is omitted here to simplify the musical interaction). The three instruments that complete the ostinato pattern, preferably performed live in the classroom, are: *Dawuro* (bell), *Donno* (hourglass drum), and *Aburukuwa* (stick drum). If the authentic instruments are not available, triangle, anvil,

¹³This excerpt is taken from Willie Anku, *Ashanti Royal Music For Percussion Ensemble: Kete Drumming* (San Marcos, CA: California State University, 1996).

or a rattle may substitute for the *Dawuro*, and bongo or any kind of stick drum for the other two instruments. To emphasize the holistic and kinesthetic nature of this music, the students are encouraged to listen to the three parts until they can latch onto one of the parts and then actively participate by imitating one of the parts in synchrony with the ongoing performance. It is important that the performance lasts as long as it takes for the students to absorb the rhythm of each part internally within their bodies.

At this point, I introduce the TUBS (time/unit/box/system) notation, frequently used to transcribe African drumming patterns for pedagogical use. To illustrate the cyclical periodicity of this music, the notation consists of a series of rectangular boxes enclosed within a timeline (here the bold line demarcates the unit of twelve), and each entry is denoted by a black dot. Since the *Dawuro* pattern provides the foundation, I begin by tapping the twelve beats and reciting the pattern two or three times. The students then imitate the tapping and recitation of the pattern and proceed to “map” the note entries by filling in black dots wherever they hear them. This procedure can be slowed down significantly to facilitate the transcription process. The tapping of the twelve beats, nonetheless, should remain accentually neutral (i.e., no stress every three or four notes) to avoid the establishment of metric grouping. The *Donno* part is then played in conjunction with the *Dawuro* part; the students are asked to imitate the new part and determine where it falls in relation to the *Dawuro*. I also ask the students to distinguish the registral change by writing “h”(high) and “l” (low) beneath the rectangular boxes. Last, the *Aburukuwa* part is added to the other two parts in performance, and the students proceed to transcribe the third part in a like manner.

When the transcription of all three parts is completed and checked, the students are encouraged to perform the excerpt from the TUBS notation to gain an understanding of the structure of the whole. This exercise focuses on the development of the kinesthetic modality in accordance with the music practices in African culture that depend almost exclusively on aural/kinesthetic transmission. Transcription of the rhythms based on Western notation may be introduced at the end for comparative purposes; the transcription

FIGURE 7a: Ear-training sample worksheet #3

step 1: Listen to the *Dawuro* (bell ostinato) part and tap the pattern within twelve beat unit where each of the rectangular box corresponds to a beat unit. Then proceed to fill in a black dot wherever there is a rhythmic attack corresponding to each beat unit.

step 2: Tap the pattern for the *Donno* (hourglass drum) part. Then proceed to fill in its pattern in relation to the *Dawuro* part. Indicate the alternation between the low and high ends of the drum by placing l = low, h = high, below the boxed notation.

step 3: Tap the pattern for the *Aburukawa* (stick drum) part against the other two parts. Then proceed to fill in its pattern. When all three parts are notated, divide up the class into three groups and perform the osinato pattern from the notation.

Dawuro:

[illegible]

Donno:

[illegible]

h = high, l = low

Aburukuwa

[illegible]

FIGURE 7b: Ear-training sample worksheet #3 (KEY)

----- KEY -----

Dawuro:



Donno:



h = high, l = low

Aburukuwa



(eighth = pulse)

Dawuro:



Donno:



Aburukuwa:



(provided in Figure 7A) follows the polyrhythmic approach to African drumming formalized by Simha Arom.¹⁴

FUTURE AVENUES: CAI AND CURRICULAR DEVELOPMENT

In this preliminary outline of ear-training strategies for post-tonal and non-Western musics, I try to address the individual differences in modality channeling through the three-fold process of diagnosis, evaluation, and prescription. The diagnostic process may prove to be time-consuming to an instructor with a large class, yet it presents the most critical stage in identifying the students' modality strength as well as the "blocked" areas of modality channeling. As in practicing an instrument, the students need to become aware of their strengths and be given specific strategies for overcoming areas of weaknesses in order to make any progress. The strategies introduced here are not limited to application in post-tonal and ethnic musical literature. The gradated notational system, e.g., spatial notation and contour shapes, may also be adopted at the freshman level in the context of tonal music.

One of the most important goals in my classroom teaching is the integration of modality-based activities to transform the students from being "passive" to "active" listeners and participants. Sight singing and ear training should *not* be compartmentalized as separate entities, but joined as complementary activities: teachers and students should incorporate external and internal vocalization exercises in ear training, and emphasize aural "imaging" in sight singing (where the students learn to hear the melody internally prior to vocalizing).

¹⁴ Simha Arom, *African Polyphony & Polyrhythm: Musical Structure and Methodology* (Cambridge University Press, 1991). Arom describes African rhythms as consisting of isochronous pulses and periodicity (recurring timeline) which may be illustrated using Western rhythmic notation without metric confinement. He shows how individual rhythmic parts may be stratified, each with its own periodicity and rhythmic organization. The choice of notation affects how we conceptualize this music. TUBS notation treats the *Dawuro* part as the principal voice against which the other parts are coordinated, while Arom's polyrhythmic notation presents the three parts as having independent timelines and rhythmic autonomy.

My eventual goal is to develop a CAI (computer-assisted musical instruction) program that offers the user interactive capabilities at the computer; students should be able to select and customize a menu of strategies, “mapping” drills, and method of evaluation tailored to each individual’s development of modality channeling. After the diagnostic exam, the students could design their own prescription for working on ear-training (analogous to what was shown in Figure 3 for Renee and Guy) and implement systematic steps for traversing an ear-training exercise at the computer and/or creating their own drills. In trying to establish a systematic approach to ear training, there is always the danger of making the exercises too prescriptive: the instructor sets too many rules and “hoops” while the students cease to make decisions for themselves. I find it crucial, at this preliminary stage, to get a wide range of responses from students and colleagues to expand the levels of flexibility, accessibility, and the range of the graded worksheets introduced here. Exercises may also be cross-referenced by their emphasis on modality channeling: certain exercises emphasize kinesthetic to visual mapping (*Asante* drumming), while others emphasize aural to kinesthetic modality channeling (*Au Privave*) as a prerequisite to visual channeling.

Following Wittlich and Humphries’ context-sensitive approach, it would be possible to include musical excerpts from recordings and then to isolate the functions of individual musical parameters (e.g., pitch, rhythm, timbre) in creating drills and exercises in a CD-ROM environment. The musical repertory should draw from a wide range of twentieth century musical genres—jazz, popular, rock, modal, atonal, and ethnic musics—corresponding to the undergraduate music theory curriculum of each institution. Exposing students to a variety of musical genres and notational systems develops resilience and flexibility in their response to new, untried situations. Other non-conventional notational systems might also be introduced, e.g., the numerical system used to transcribe Javanese and Balinese gamelan. Presented in this manner, aural skills training serves not only to open the students’ ears, but also offers a gateway to open their musical and creative minds to a broad range of musical practices.

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