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Warming Up to Root Perception

While determining the root of a chord is straightforward in written theory -- arrange the notes in a stack of thirds; choose the bottom note -- even this simple procedure is too roundabout to be useful in the immediacy of aural skills context. In an aural skills class or in a practical musical context (such as improvising, vocal harmonizing, or playing by ear), the root should be apprehended directly rather than by procedure. This article describes an exercise that targets root perception through a game played in the relaxed environment of the vocal warmup at the beginning of an aural skills class.

Unlike the sounding pitches of the soprano or bass, the root is a more abstract feature of the chord's organization that may be present in any voice, or in some cases may be implied but actually absent from the sonority. For these reasons, it is difficult to describe how to hear a root directly, but the "sound" of a root can be highlighted by eliminating other features of a chord that students might tend to listen to instead.

The strategy adopted in the following warmup is to have students sing a pattern that they transpose prompted by piano chords -- so far, a familiar procedure. Initially, students may achieve the transposition by noticing any number of features: the soprano, the bass, or the pattern of transposition in the piano. But as elements of the piano prompt are progressively randomized, eventually students can only continue singing the pattern by attending to the root of each chord. The stages of this process are outlined in Figure 1,

and the accompanying video demonstrates a version of the warmup in a classroom setting.

Fig. 1: Warmup Stages

Stage 1: Familiar Vocal Warmup

Students Sing
 mi me ma mo mu me ma mo mi
 or 1 2 3 4 5 4 3 2 1
 etc.

Teacher Plays
 piano may drop out here to work on in-tune mental transposition rather than imitation (see video)

Stage 2: Random Transpositions with Fixed Piano Chord Configuration

Students Sing
 etc.

Teacher Plays
 student response here would be a minor scale

Stage 3: Random Transpositions with Variable Chord Member in Top Voice

Students Sing
 etc.

Teacher Plays

Stage 4 (Goal): Random Transpositions with Variable Chord Member in Top and Bottom Voices

Students Sing
 etc.

Teacher Plays

Stage 5 (Optional): Random Transpositions Involving 7th and 9th Chords

Students Sing
 etc.

Teacher Plays

Implementation

I have implemented this warmup in four classes: two freshman aural skills sections and two graduate remedial theory and musicianship sections. Results in each case have been similar. As the soprano and bass of the chords are changed, some students initially sing the warmup pattern back incorrectly because they are attending to a specific member of the chord, rather than to the root. At this point, they are confused, because they can tell that they are not ending on scale degree one. This confusion is a good sign: it shows that students are conscious of the disconnect between the configuration of the chord and its root, even if they cannot initially correct themselves.

When such an error occurs, I typically sing the correct pattern and move on to another chord, returning to the problem chord a few steps later. Usually, no explanation is necessary and this procedure solves the problem through recognition and example alone, which is one of the goals of the exercise. If a chord does prove particularly thorny (such as a minor chord in first inversion, which will contain a major 3rd up from the bass), I may put the chord on the board following the warmup and play it in a more familiar major or minor key context to provide an aural and visual frame of reference for the way the chord will typically appear.

One frequent obstacle in this warmup is that an adept student will sing the pattern immediately, and other students will follow a moment behind, prompted by the first singer's starting pitch. To remedy this, the room can be divided into sections that conveniently

organize the students into stronger and weaker groups without singling out individual students. The level of difficulty of each transposition can then be adjusted to target these groups, allowing the exercise to remain challenging for all.

Extension

Once students can hear the root with ease, the concepts behind this warmup can be extended to target other aspects of harmonic perception. There are two essential parts to this exercise, either of which can be altered independently of the other: the teacher's pianistic prompt, and the students' vocal response. The pianist prompt must be designed to suppress information the student could use to make the correct response for the wrong reason. The vocal response can have multiple roles; above, it serves both as a warmup, due the scalar pattern sung in various registers, and as an answer to the prompt, because it always begins on the root of the prompting chord.

Let us say that the instructor now wishes to alter this method to address hearing the bass, rather than the root. The prompt component still suffices for that purpose as-is, since it avoids patterns that could be used to find the bass without hearing it directly. The vocal response, however, requires some adjustment. If students simply sing a 5-note scalar pattern starting on the bass, they will often be singing scale degrees that do not align nicely with the harmony they are hearing (e.g., 3-4-5-6-7-6-5-4-3 when prompted with a first-inversion chord). Two possible vocal responses that would avoid this disjunction would be 1) to arpeggiate the harmony starting on the bass, or 2) to sing in steps up from

the bass to the next chord member and back down. If students are having particular difficulty hearing the bass, the instructor may remain at Stage 3 for a while, where the chords are always in the same inversion, but where the soprano note changes so that students cannot simply count down from a constant top note and avoid hearing the bass.

Video Demonstration

A video of the warmup in action can be found at <http://youtu.be/MOhNGigLYuc>. The class performing the warmup is the Eastman's School of Music's Graduate Theory and Musicianship Review, TH 117. The video has some quirks due in part to the layout of the classroom, but with the following comments it may serve as a useful frame of reference nonetheless. At the beginning of the video, the students are prepared for the exercise by singing Stage 1 with a focus on intonation, transposing up and down by semitone without the piano as a guide. The random transpositions (Stage 2) begin at 1:30, the changing soprano (Stage 3, without announcement) at 1:55, the changing bass (Stage 4) at 2:15, and some 7th and 9th chords (Stage 5) at 3:45.

At the time of the video (Fall 2012), the students had been exposed to this warmup twice before. Some classes picked up the exercise more rapidly than others, with some reaching Stage 5 on the first day, and others going only as far as Stage 3. In general, though, the students were quite comfortable with the procedure at this point, so there was only minimal explanation necessary in the recorded class. For the same reason, the end of the video features some more unusual 7th- and 9th-chord sonorities for the students to

respond to. The purpose of these final chords is primarily to keep the students engaged and excited about the exercise, and in that regard it seems to serve its purpose, as it challenges even the better students in the class and gives them something to shoot for whenever the warmup comes up again.

At the heart of this exercise is the idea of creating a non-patterned warmup so that rather responding by rote, students are reacting spontaneously to a musical quality -- in this case the root -- that is highlighted by the prompts. Essential to the exercise, therefore, is that the teacher either improvise or write out a new chord progression each time so that the students do not memorize the progression. In improvising at the beginning of class, the teacher will warm up his or her own mind as well, leading to benefits in the communication and focus of all involved.