

Engaging Musical Expectation Research in Pedagogy of Musical Form and Phrase Structure

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ABSTRACT

This paper aims to bridge the gulf between music cognition and mainstream music theory by describing ways to augment typical approaches to basic musical organization (form and phrase structure) in a traditional music theory class. Discussing principles of musical expectation, event segmentation, schema theory, and statistical learning is compatible with common pedagogical approaches to form. I also suggest classroom activities and assignments that engage research in expectation and schema theory.

I. INTRODUCTION

In North American colleges and universities, music theory textbooks for music majors would be considered outdated if they failed to reflect the principles expressed by Heinrich Schenker between 1906 and 1935. In contrast, not even the most modern mainstream music texts incorporate well-established music cognition research to any significant degree. Such an omission may be understandable when the topic at hand is traditional four-part writing: interpreting music as a product of statistical learning (e.g., Huron 2006) appears to negate cherished models of harmony and voice leading. It would be difficult for a classroom teacher to adopt such contrary points of view when addressing tonal harmony. When the focal topic is musical form and phrase structure, however, the principles revealed by music cognition research are not only compatible with common pedagogical approaches but may actually enhance discussion and help to clarify complex musical relationships.

II. FORM AND SCHEMA THEORY

Musical form — by which I mean here the organization a movement or an entire work — necessarily relies on a set of expectations shared by listeners and composers. Not only is it possible for a classroom teacher to introduce important tenets of schema theory along with traditional forms, but indeed it would be difficult to avoid stating many of these tenets (albeit with different terminology) in the course of such discussions because the notion of stylistic conventions is absolutely essential to musical form.

Whether deliberately or not, large-scale musical form is sometimes presented as a static prototype. Students tend to develop an understanding that is skewed toward especially popular composers. Works that deviate from the prototype may be viewed as somehow incorrect (for instance, a sonata form that deviates from Mozart's typical practices seems peculiar at best and defective at worst).

This is by no means an original observation; music scholars have complained for years that typical classroom approaches distort the concept of form. Rosen (1988), for instance, famously stated that there is no definite sonata form. I believe that describing musical forms as schemata would be helpful in

several respects. This approach conveys a greater sense of flexibility and allows convenient comparison to recognizable variations within predictable genres outside of music (such as fairy tales). It also conveys an analytical mindset in which musicians understand that different components of the schema may interact. Thus, it is particularly useful when discussing forms such as the sonata-rondo or the Classical concerto. An exploration of how different schemata are evoked by particular musical elements should prove far more illuminating than a single model that cannot accurately capture a wide range of compositional plans.

III. SEGMENTATION AND CLOSURE

While most music theory curricula and textbooks include substantial units devoted to form, more basic concepts such as determining dividing points — without which musical form could not exist — may never be explored. Event segmentation theory (see Kurby & Zacks 2008) examines how we parse a continuous input stream into perceptually discrete events. In addition to addressing event boundaries themselves, event segmentation theory suggests that the formation of such boundaries contributes to the formation of memories and also to our ability to predict future events. As an inherently temporal art form, music relies on memory and prediction.

In mainstream music theory, segmentation is sometimes discussed with regard to post-tonal music (e.g., Hasty 1981), but segmentation in tonal music is typically taken for granted. Indeed, experienced musicians overwhelmingly agree on how to segment common-practice music. The same cannot be said, however, for inexperienced musicians.

Some weaker students initially have trouble recognizing the boundary between a half cadence and the tonic chord that follows it, for instance. For practical reasons, even the best textbooks rely heavily on brief excerpts, reducing or even eliminating the need to segment the music further. More insidiously, some widely used textbooks routinely mark cadences, asking students to name them but not to locate them independently. For these and other reasons, sometimes fundamental misunderstandings of segmentation such as this are effectively disguised and therefore not addressed promptly. At a less rudimentary level, numerous students — including many strong students — fail to recognize the beginning of a transitional passage in sonata form if it closely matches the first theme. Most students could benefit significantly from a unit examining the factors that contribute to our sense of musical dividing points. In the case of parallel phrases or a dependent transition, for instance, the return of a gesture that originally served as a beginning is typically interpreted as marking the beginning of another unit.

Incidentally, the relationship between segmentation and cadence identification in tonal music remains potentially interesting at even the most advanced levels. When Burstein

(2010) revealed discrepancies in cadence identification (half vs. authentic) among professional music theorists, he was not suggesting any kind of harmonic confusion: he was identifying passages with ambiguous segmentation.

Event segmentation theory provides an explanation for musicians' traditional emphasis on beginnings (for instance, when assessing phrases as parallel or contrasting). More significantly, event segmentation is inextricably linked to the notion of closure (see Peebles 2011), which in turn is a principle element of musical form. Indeed, one of the most important features reinforced by music teachers is the cadence, which is often compared to punctuation at the end of a written sentence in language. (Punctuation marks, of course, are an assortment of visual symbols that represent varying levels of segmentation in written language — segmentation that would be bolstered through timing and inflection in spoken language.) Although cadences are often portrayed to beginning students as harmonic patterns that create a sense of closure (e.g., the authentic cadence involves a V chord followed by a I chord), a sophisticated teacher will discuss the interaction of harmony and other markers of closure. While the V-I harmonic pattern does indeed coincide with strong dividing points (that is, boundaries between relatively long segments), clearly not every V-I succession would be described as a cadence. Harmony contributes to a sense of closure, but harmony alone cannot create musical closure.

In fact, harmony might more accurately be described as having the potential to undermine musical closure. Consider, for instance, the ending of the second movement of Handel's Concerto Grosso, Op. 6, no. 12 (reduced from its original orchestral texture in Figure 1).



Figure 1. Harmony overrides a rest's implication of closure

Ordinarily a long note followed by silence (as in the second measure of Figure 1) is interpreted as a marker of segmentation: many phrases conclude with a long note and a successive rest, and larger musical segments are increasingly likely to be set apart by long notes and rests. In this case, however, the harmony heard during the long note — the vi chord — is not associated with musical endings. All other factors (e.g., rhythm, meter, melody, register, and preceding harmony) lead an experienced musician to anticipate a segmental boundary at this point, but the unexpected harmony (vi rather than i) is sufficient to disrupt the cadence. Any listener familiar with the Western music style will await a more definitive closing gesture, which occurs two measures later. Again, though, notice the interaction of harmony and closure: although during this rest a competent listener will be anticipating the arrival of the tonic triad, the root-position tonic triad on the downbeat of the following measure is insufficient. Not only does this tonic chord occur too soon for the schematic expectations of an experienced listener, but the melody (ŝ rather than i) and the preceding harmony (iv rather than i) do not signal closure.

As any educated musician knows, the resolution of V to iv (rather than to i) in Figure 1 constitutes a deceptive cadence. Deceptive cadences have been addressed in detail by many authors (e.g., Huron 2006), and so I will not discuss them further here. It is worth mentioning, though, that — just as not every V-I succession constitutes an authentic cadence — a V-vi succession will not necessarily be interpreted as a deceptive cadence. Consider the beginning of the second theme from Beethoven's "Waldstein" Sonata (Piano Sonata No. 21, Op. 53), provided in Figure 2.



Figure 2. Expectation influences the effects of harmony

Statistical learning leads an experienced musician to anticipate that the tonic will follow the dominant, and in this sense the third chord is surprising. However, a competent listener would not expect a cadence of any sort after only one measure, and thus the musical effect resulting from the V-vi succession in Figure 2 is entirely different from that of Figure 1. Indeed, the first measure of Figure 2 seems fairly unremarkable because our expectations are so weak at the beginning of a new segment. Such distinctions lead some music theorists to adopt the term "deceptive resolution" as distinct from "deceptive cadence": a deceptive cadence can only occur at the moment when a listener expects an authentic cadence, whereas a deceptive resolution can occur when a non-cadential tonic chord is expected. Again, a nuanced understanding of the mutual influence of harmony and phrase structure relies upon conscious knowledge of expectation and segmentation.

IV. SOME EFFECTS ON LISTENING

Music theory teachers arguably reverse the natural learning process by outlining patterns a musician would ideally acquire through hours of attentive listening — that is, through statistical learning — and then asking students to memorize them. In this sense, classroom education could be accused of replacing independent experience. I do not consider this a serious criticism, though, because ideally this imparting of knowledge will serve not as a substitute but rather as a shortcut, leading to more efficient statistical learning because it directs the listener's attention to common patterns.

A greater problem, in my opinion, is that we tend to emphasize what is heard, and occasionally what is expected, but we rarely analyze *why* it is (or is not) expected. In other words, we identify significant musical events, we name them (often with additional descriptors to represent particular subcategories), and we outline the order in which they typically occur. We are less likely to focus on the stylistic elements that allow an expert listener to predict that a passage is about to modulate, that a familiar theme will soon return, or that a cadence is approaching. Although there is nothing inherently wrong with such a pedagogical approach, it is oriented around retrospective musical understanding. I suggest that there is practical value in addressing anticipatory

listening more directly. Musicians sometimes differentiate active listening from passive listening, and the difference seems to be this inclination to predict future events consciously. Certainly it is possible to enjoy music that “washes over” us, but following the complex interaction of different musical parameters and understanding how one dimension may signal potential closure while another indicates continuation is a fundamentally different listening experience. Among amusic teacher’s loftiest goals is enabling students to appreciate the ways in which composers establish, thwart, and fulfill expectations.

V. EXPECTATION-BASED CLASSROOM ACTIVITIES

One of my favorite classroom activities is having students improvise in response to a musical stimulus that I provide. I find focused improvisation very useful because it allows me to gauge my students’ expectations, makes my students aware that they have expectations even when a topic initially seems unfamiliar, and provides an opportunity for students to speculate why one response seems more satisfying than another.

For instance, I have found that I am able to address all important aspects of the cadential $\frac{6}{4}$ chord simply by asking students, in real time, to sing a continuation of the outer voices for two flagrantly incomplete progressions (shown in Figure 3) played on the piano.



Figure 3. Two harmonic prompts for student improvisation

In response to the first prompt, students will continue in quarter notes: $\hat{5}-\hat{1}$ in the bass and $\hat{2}-\hat{1}$ in the melody, implying the expected V-I cadence. In response to the second prompt, however, students will reliably sing $\hat{5}-\hat{5}-\hat{1}$ in the bass and $\hat{3}-\hat{2}-\hat{1}$ in the melody, implying a $V_4^6-\frac{3}{2}-I$ pattern (which is new to them). I ask them to explain why they sang three notes after the second prompt (answer: because the second partial progression stopped on a weak beat) and why they spontaneously sang an accented passing tone (answer: because we expect stepwise melodic motion at a cadence). In a few seconds of singing and a few minutes of discussion, we have captured the gist of the cadential $\frac{6}{4}$ chord more clearly and memorably than I could through any lecture.

Another productive topic for quick improvisation and discussion is musical sentence structure (in the sense of Schoenberg 1967 and Caplin 1998). Textbooks typically ask students only to determine whether a given phrase is a sentence (e.g., Clendinning & Marvin 2011) or to subcategorize sentences further (e.g., whether a sentence has a “dissolving continuation module,” following Hepokoski & Darcy 2006). My approach is to start with a small unit (Caplin’s “basic idea”) and ask students to improvise what comes next: for instance, a $\hat{1}-\hat{2}-\hat{3}-\hat{1}-\hat{2}$ pattern almost invariably inspires a $\hat{2}-\hat{3}-\hat{4}-\hat{2}-\hat{3}$ response. This time, my follow-up questions are far more interpretive. Why not repeat the same

pattern exactly? Why shift it up a step rather than down a step or up a third? Such questions cause students to examine their musical expectations more deeply than many other activities. Once we have established the central notions of an opening basic idea and its varied repetition, naturally the final step is to improvise an appropriate continuation to the cadence.

VI. EXPECTATION-BASED HOMEWORK ASSIGNMENTS

Following the sentence-improvisation activity described in the previous section, as homework I ask students to compose their own pattern that will similarly inspire a uniform improvised response from their classmates. I also ask them to predict what this response will be and to explain why. This assignment (as well as subsequent in-class trials of the material generated and discussion) eventually leads to a class contest in which students attempt to predict one another’s musical continuations. Although this class contest does not constitute a tightly controlled experiment, the results are nonetheless interesting.

I provided a series of basic ideas for sentences. Students were instructed to continue these sentences in a suitable manner; they were also asked to rate each basic idea’s level of predictability on a five-point scale (where 1 indicates very unclear melodic implications and 5 indicates very clear melodic implications). This collection of basic ideas is provided in Figure 4; the maximum number of identical responses received per pattern is depicted in Figure 5.



Figure 4. Basic ideas provided for continuation and for rating of perceived clarity of melodic implications

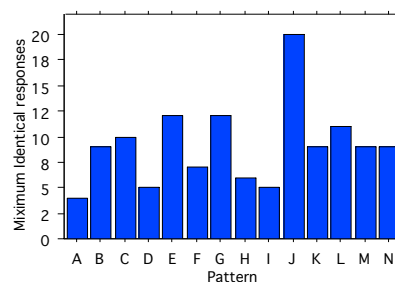


Figure 5. Maximum identical responses for each basic idea

The first thing to observe from Figure 5 is the remarkably high rate of identical responses: 5 of the 14 patterns elicited identical continuations from at least 10 of the 22 students who completed the assignment, and 9 of the 14 patterns elicited at least 9 identical continuations. Pattern *j* was by far the most predictable of these basic ideas, inspiring precisely the same one-measure continuation from 20 of the 22 students. Notice that this particular pattern exhibits two important traits that contribute to predictability: it strongly implies tonic-to-dominant motion (which in sentence structure is typically followed by dominant-to-tonic motion), and it elaborates an overall stepwise rising pattern from $\hat{1}$ to $\hat{2}$, suggesting a continuation up to $\hat{3}$.

Students were generally able to assess the predictability of the patterns provided: their ratings correlated strongly with the number of identical continuations composed ($r = .617$, $p < .05$; incidentally, students' ratings of predictability also correlated with my own. $r = .685$, $p < .01$). Furthermore, patterns for which a student's own continuation matched the most popular response received significantly higher ratings ($p < .01$).

Finally, an informal observation: students in my class distinctly outperformed their peers enrolled in other sections of the same course (who had not participated in any of these supplemental activities) on final exam questions relating to sentence structure.

VII. CONCLUSIONS

Cognitive research involving expectation, schema theory, and event segmentation theory is highly relevant to the analysis of musical form and phrase structure. Pedagogical approaches that explicitly address listener expectations and the musical features that contribute most strongly to forming these expectations may lead students to a deeper and more nuanced understanding of musical organization and its basic principles.

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