Meta+Hodos: Applying James Tenney's Gestalt Based Analytical Model In Undergraduate Theory Pedagogy

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Abstract

To this day, undergraduate theory curriculum is primarily concerned with information related to the form defining elements of functional harmony. Students are taught to analyze harmonic context and pitch relationships almost to the exclusion of all other factors. However, contemporary and modernist compositions frequently rely far less on pitch relationships as primary form creating devices. Other parameters take on greater significance. Even as pitch remains a critical element in serial and set related music, a method of drawing attention to non-pitch or non-functional harmonic structures is crucial to a more complete understanding of the form and comprehension of post-tonal music. As a potential remedy, this article explores the possible utilization and merits of James Tenney's gestalt based analytical model presented in his book *Meta+Hodos*. Within the context of this paper, his insights into gestalt theory will be used as an attempt to clarify and describe perceived aural phenomena from which a more comprehensive interpretation of non-tonal music may follow.

Typically, undergraduate theory classes are primarily concerned with materials related to tonality–the principal governing factor of form and comprehension in the music of the Baroque, Classical and Romantic periods and the music experienced most often by the majority of concert goers. Topics in the average theory class revolve around chord structure, voice-leading, harmonic motion, tonal form and the like. Rhythm gets the occasional nod. Texture, timbre and density usually wait for orchestration class. Certainly more than pitch manipulation accounts for the success of tonal music, but, due in no small part to time restrictions, tonal function is emphasized almost to the exclusion of all other parameters. After several semesters of well-meaning myopic tonal indoctrination, students are left with the impression that pitch is virtually the only element of form worth a mention. Frequency manipulation "is" music.

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The situation with music from the early 20th century onwards is quite different. Even the casual or inexperienced observer will concede that, if nothing else, the music of the 20th century and today is far more diverse than any other period in history–banal, cerebral, pompous, trite-frustrated expectations common and foot-tapping tunes too few for some. The kaleidoscopic variety cannot be attributed to pitch manipulation alone. Organized in a manner completely unlike previous eras, much of the music of the 20th century and today requires a more flexible approach in its description, analysis, and performance.

But how are we to approach such unfamiliar music in the classroom? The old tonal tools are not appropriate for the job. Set theory is excellent for pitch information but does little to explain many of the other peculiarities on non-tonal music. The following discussion will focus on gestalt theory as a possible additional avenue of exploration available to undergraduate theory instructors in their classroom analysis of non-tonal music.

As a partial remedy to the lack of appropriate analytical methods for non-tonal music, James Tenney wrote *Meta+Hodos* as his Master's thesis at the University of Illinois in 1961. In the seminal work, Tenney attempted to create a means of describing and organizing new music parameters in the terms of gestalt psychology–an entirely novel approach at the time. The focal point of the book is that many parameters other than pitch form aural gestalts (temporal gestalts) and ultimately through their compilation and organization on several hierarchical levels, our perceptions of entire pieces are formed. The work was not created as a textbook. There are no step by step analytical applications. However, an adoption of some form of Tenney's gestalt based approach within undergraduate theory coursework will help foster an awareness of the multitude of parameters that receive varying states of formal significance within many works of non-tonal music.

Gestalt theory attempts to clarify issues of perception–not interpretation. Within the context of this paper, it is a means of describing perceived aural phenomena from which a more comprehensive interpretation of new music may follow. It is not an absolute, cut and dried method. Some of our perceptions are relatively constant, at other times they vary with, among other things, our experience, our health, familiarity with the music or the particular circumstances surrounding the performance. However, applying the rudimentary concepts of the theory to our perception of music will reveal much more than pitch analysis alone.

The terms and techniques of *Meta+Hodos* are entirely removed from traditional harmonic analysis and brief descriptions of the principles of gestalt formation are necessary before an application can be demonstrated. The terms may seem rather unmusical and scientific to some–a barrier instructors should take into consideration when first presenting the material to their classes. However, gestalt concepts presented within *Meta+Hodos* will be

familiar, at least in passing, to any student who has completed an introductory college course in psychology. The novelty lies in the application within a musical setting.

Of primary importance is the *principle of equivalence.* The principle states that all parameters of music may form cohesive units or aural gestalts individually or in conjunction with other parameters, and serve equally as structural elements within varying hierarchical levels–levels loosely grouped into three categories. For the most essential level or unit of form, Tenney reserves the term ***clang***–a sound configuration of various parameters perceived as a primary musical unit or aural gestalt. A clang may be subdivided into ***elements***–aural units forming component or subordinate parts of a clang. Clangs, set apart by way of their unity and singularity, form ***sequences***–aural gestalts larger than and not as strong as clangs and requiring a degree of memory.

Structural units–aural gestalts–are formed by primary and secondary factors of cohesion and segregation. By way of the primary factor of ***similarity***, sound elements with similar values in some parameter tend to form clangs or sequences while relatively dissimilar sounds produce segregation. ***Proximity***, the other primary factor of cohesion and segregation, refers to aural gestalts formed by simultaneous or contiguous collections of sounds. By way of contrast, segregation will occur as greater separations in time are introduced–other factors being equal.

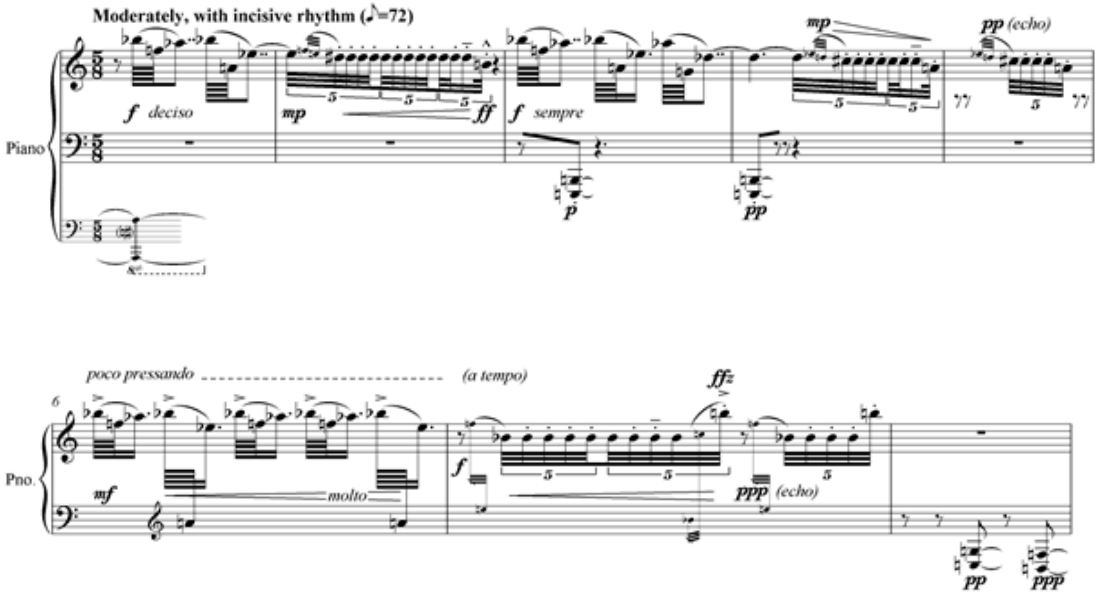
Secondary factors of cohesion and segregation–***intensity, repetition, subjective set, and objective set***–also play a significant role in our perception of non-tonal music. In a collection of sounds exhibiting considerable differences in parametric intensity, the more intense facets will tend to be perceived as focal points and often the starting points of clangs. However, repetition of the parametric profiles within a series of sounds tends to produce a subdivision of that series into units corresponding to the repeated patterns or shapes.

Each individual has a subjective and an objective set of expectations. Subjective sets of expectations are created by past musical experiences–a life's experience of music. While objective sets are created by previous events occurring within the piece under consideration–rhythmic inertia is an example.

Though an entire century has passed since the adoption of non-tonal practices, some students will find sound-constructs unlike those found in tonal music to be merely surface features rather than elements of structural significance. On first hearing atonal music, novices are frequently left with the impression that the works are completely haphazard. As a partial remedy and contrary to common practice, their resistance may be diminished if the scores are introduced *before* listening. Structure can be illustrated from the outset. Of course, not every

feature is significant and distractions abound–one must be careful not to let the eye deceive or override the ear. Rhythm will often be more prose-like and confined less to the meter. Melodies often contain much larger intervals and the full capabilities of instruments are often explored. Increases in the rate and scope of change may be experienced within most musical parameters including tempo, dynamics, register, density, rhythm, and timbre. However a sense of continuity will develop with increased skills in ***textural focus*** (the determination of features of most importance within a complex sound configuration at any given moment) and ***temporal scale perception*** (the perception and organization of musical formations over time, from brief durations to those that are much longer and requiring a degree of memory).

How can this analytical model be presented to an undergraduate class? Several straightforward excerpts will follow as examples of implementation. An excellent place to begin, due to its clarity and modest texture, is the opening phrase of George Crumb's *Pastorale* from *Makrokosmos, Volume 1* (example 1a).



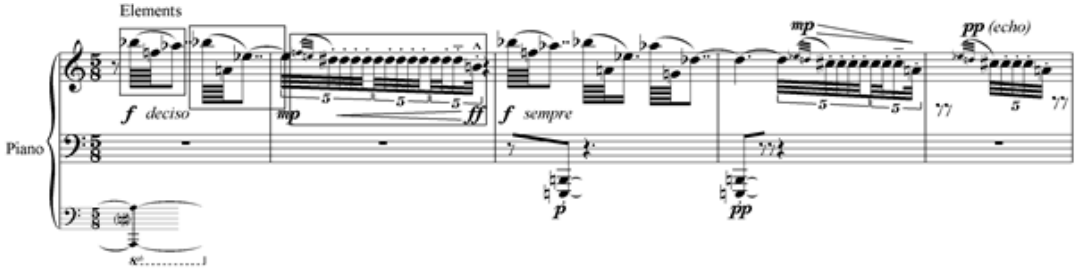
Example 1a. George Crumb, *Pastorale* from *Makrokosmos* Vol. 1

This phrase has a ***simple-monophonic*** gestalt structure; that is, each element is heard one at a time. None of the elements overlaps or adds density to another element or clang. The primary factors of cohesion–proximity and similarity–are easily seen at the outset and can be readily established with a very inexperienced eye or "mental ear." There are three repeating or varied elements–the 64th note figure, the repeated note figure, and the very low dyad. The temporal placement of the 64th note/double dotted 8th note gestures induces the listeners' mind to perceive the brief collections of pitches as discrete units-elements in this case. A simple example or comparison would be the group of x's below. We see them not as twelve x's but as four groups of three x's.

xxx xxx xxx xxx

Certainly, any audience can discern the similarity or repetition between each element. In a tonal context, these brief flourishes would be considered a motive–a term closely linked to the law of similarity. With reference to musical perception, Tenney refines the law of similarity as follows–"in a collection of sound elements (or clangs) those which are similar (with respect to values in some parameter) will tend to form clangs (or sequences), while relative dissimilarity will produce segregation–other factors being equal.[1]

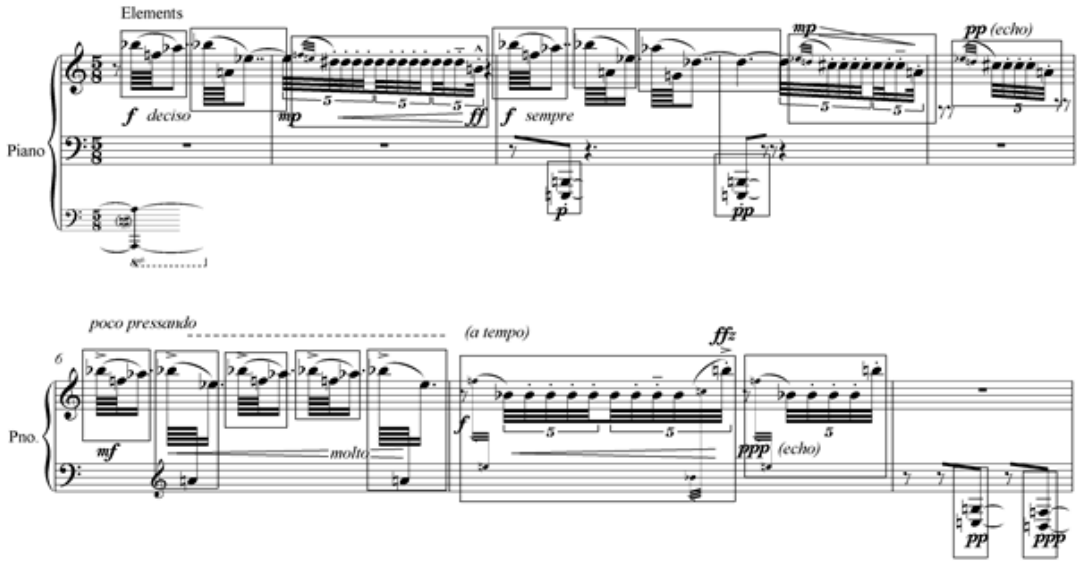
At this juncture, after perusing the score and pointing out repetitions and grouping, the instructor may play a recording of the short movement. Following this, initial elements found at the beginning of the first sequence can be presented in boxed form (Example 1b).



Example 1b. George Crumb, *Pastorale* from *Makrokosmos* Vol. 1

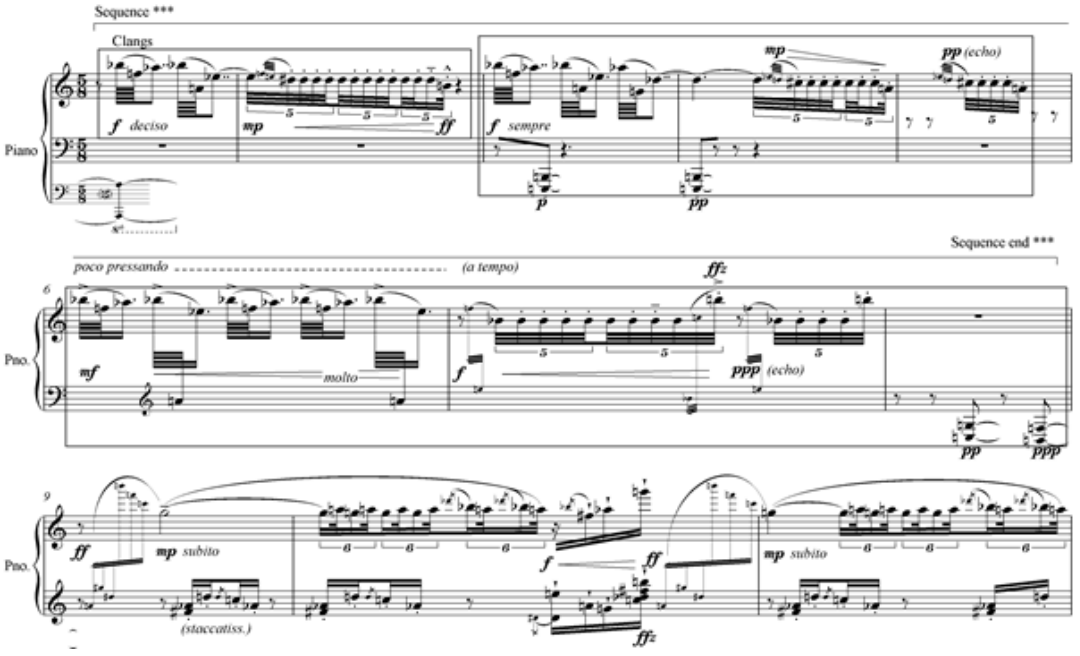
[1] James Tenney, *Meta+Hodos* (Hanover, NH: Frog Peak Music, 1992), 95.

Following the introduction of element formation, the class may be given time to establish the remaining gestalt elements within the movement. For this piece, the task is not a difficult one and the result will generally not stray far from example 1c. As each student has a common interpretation, a consensus will often arise that something of underlying structural significance may indeed be present. This alone may help to awaken a sense or curiosity of non-pitch based structures. It is important to choose works for analysis carefully at the outset, as consensus seems to be somewhat of an imperative. A highly varied interpretation by a large segment of the class may reinforce the feeling that the music is a collection of random, disassociated noises. Once the infernal seed is placed, it is quite difficult to remove.



Example 1c. George Crumb, *Pastorale* from *Makrokosmos* Vol. 1

Establishing clang and sequence formation is the next step in our process (example 1d). The clangs of this phrase are primarily created through variations in proximity; i.e. the clangs are grouped with rests between them. However, we can see that the *echo* in measure 5 is separated by rests on either side but is grouped with the preceding elements by means of its similarity to the gesture that immediately preceded it. The same effect between two elements can be seen in measure 7. The final two chords could be grouped into a separate clang, but their similarity to the chords heard in measures 3 and 4 may also create a sense that they belong, like punctuation marks, to the end of the final clang. The material following measure 8 is made entirely of new elements and the process of grouping by similarity and proximity starts anew.



Example 1d. George Crumb, *Pastorale* from *Makrokosmos* Vol. 1

Of course, not all music is monophonic in structure. Music can be considered polyphonic if clang or sequence-overlap is increased to a point where the structures are no longer heard one at a time. This should not be confused with the simple accumulation of material to a texture. For true polyphony to exist there must be a clear differentiation among the parts. That is, there must be clearly perceptible differences between several monophonic structures and, at the same time, a high degree of similarity within each monophonic structure. The simple addition of material to a pre-existing clang or sequence is likely to make the structure compound monophonic rather than polyphonic.

To illustrate compound monophonic sequences created through complex contrapuntal textures lacking the similarity factor, we shall turn to the first movement of Webern's 6 Bagatelles Op. 9 for string quartet (example 2).

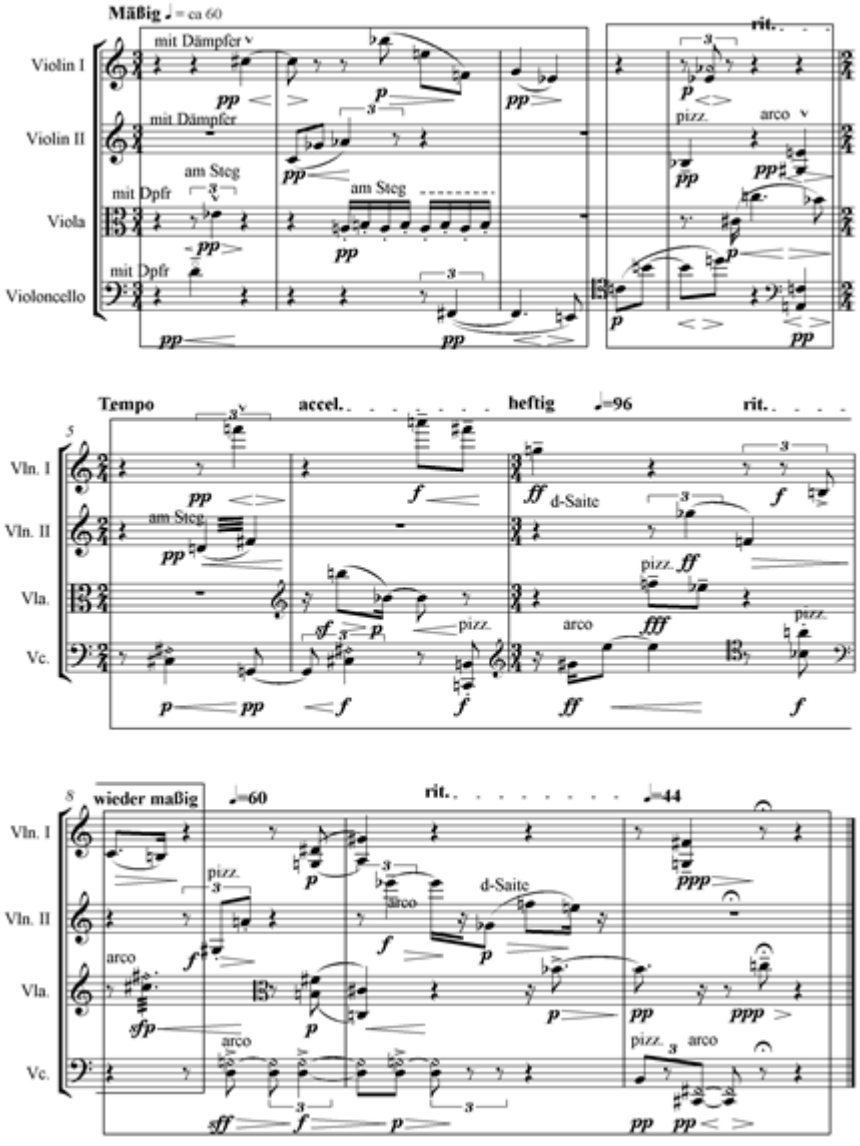
The movement and the entire set of bagatelles are quite short–typical for much of Webern's music. The texture in the first bagatelle is highly fragmented as are the individual parts–very few elements last longer than three notes. There are many rests, articulation variances, and rapid shifts in the dynamics. Nothing remotely resembling a melody in the traditional tonal sense emerges. Instead, the textures are heard as fragile, complex blocks of sound with edges and odd curves protruding here and there.

Clang delineation is created through rests punctuating the beginning and cessation of the first two clangs (measures 3 and 5). The third clang overlaps the fourth; although one could claim that they are in fact one unit. The forward momentum of the final two clangs is achieved through an increase in range and an arch form in texture and dynamics. The brevity of the piece precludes boredom setting in and relieves the composer of the burden of prolonged formal development–a problem encountered by early non-tonal composers searching for means of cohesion, symmetry, comprehensibility.

Absent are the factors of similarity within each part and perceptible differences between the parts. Each instrument shifts rapidly from one articulation and dynamic to the next, they overlap frequently, and, of course, the timbre of the instruments are quite similar when playing with mutes, harmonics, behind the bridge, and pizzicato.

The lack of the similarity factor is not seen as a criticism of the work, rather it was clearly the intent of the composer to create a work consisting entirely of complex textures. Extremely careful placement of elements, dynamics, articulations, rhythmic placement, and tempo manipulation all lead to the completion of a sequence–long statement of delicate and cohesive ideas.

As instructors search for additional examples of monophonic textures created through polyphonic means, it will become evident that intriguing questions will concern not the amount of contrasting elements, but how the disparate elements make a convincing and complete comprehensible statement. Texture as a formal device is generally lacking from most discourse at the undergraduate level and should be addressed early in the study of non-tonal music.

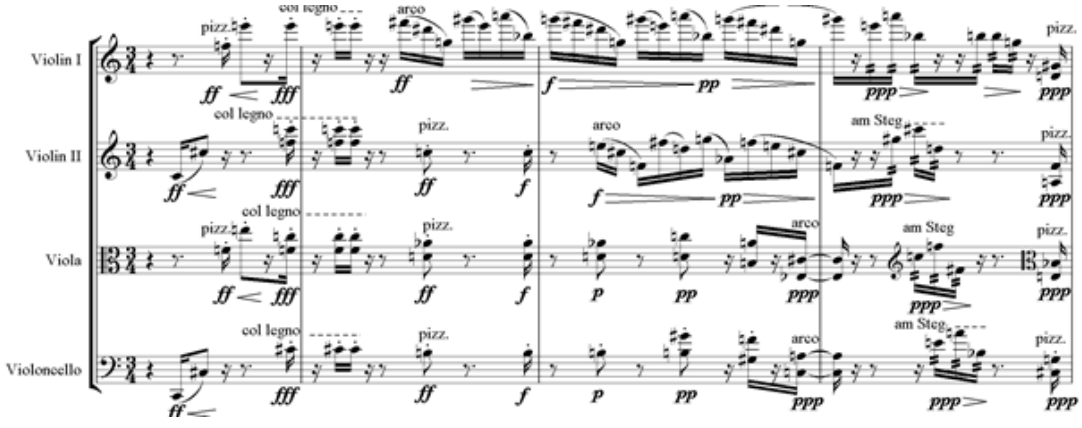


Example 2. Anton Webern, Op. 9, #1

To illustrate a compound monophonic sequence created through polyphonic intensification, we shall turn to the opening measures of the first movement of Webern's Op. 5 (example 3).

On viewing the opening five measures of the piece, one would expect the second violins imitation in bar 3 to create polyphony. However, the part introduced as a contrapuntal imitation is not likely to be heard as such; rather it will be perceived as intensification, through textural density, of the pre-existing clang created primarily by the first violin. There simply is not enough dissimilarity in the parts. They have the same timbre, dynamics, rhythm, articula-

tion and, of course, the same placement in the hall. Certainly, one has to take into account the relative perspective of each individual. The performers will no doubt hear their part as an imitation, just as a choir would hear their individual parts as imitation within modal polyphonic works of the 16th century. However, most analysis–this paper included–takes the perspective of the audience as of primary importance–a topic that may need review by some in another paper.

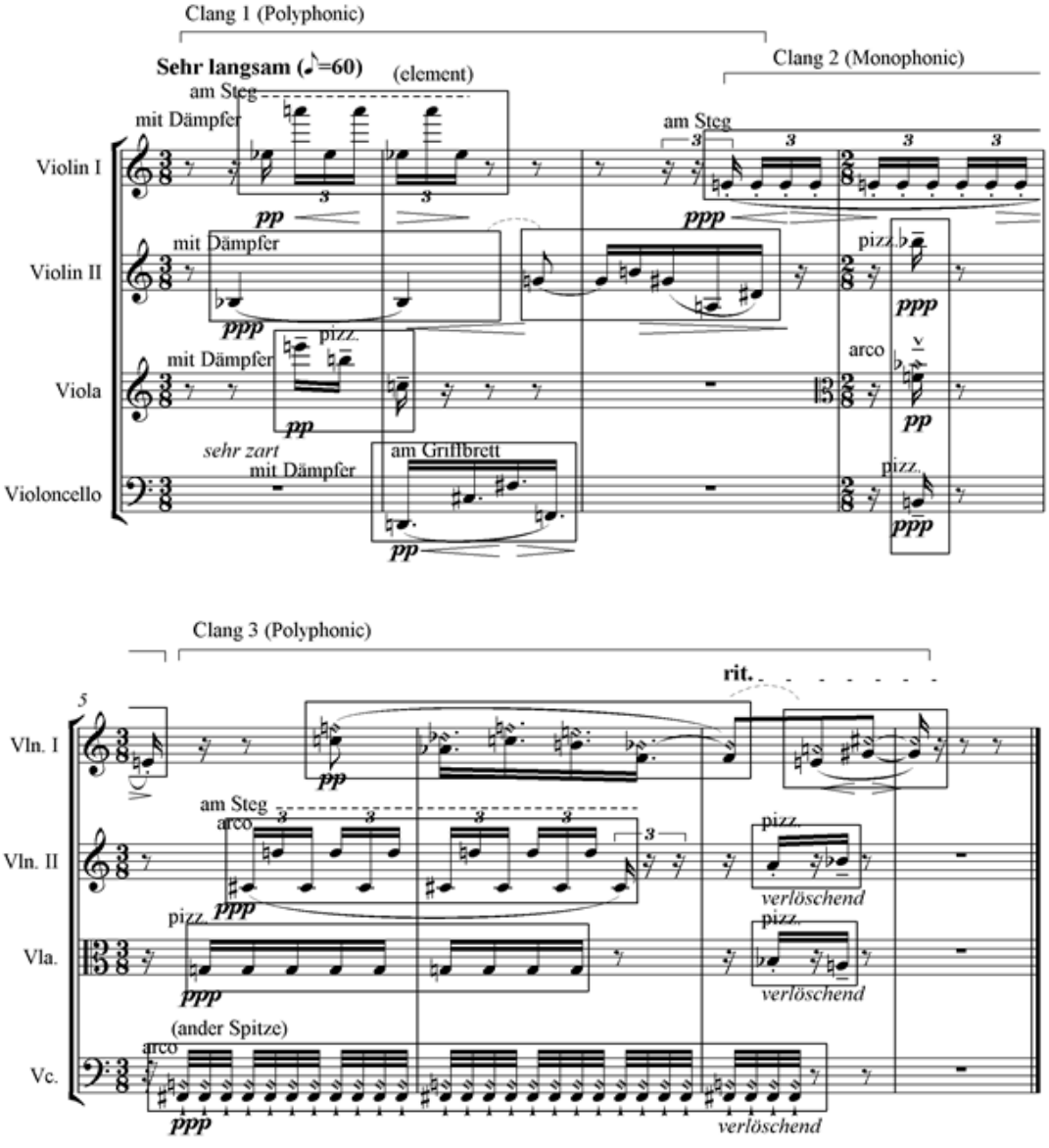


Example 3. Anton Webern, Op. 5, #1

To illustrate multiple parts heard as polyphony rather than complex monophonic structures, we shall make a very brief analysis of Webern's fourth bagatelle from Op. 9 (example 4). As with the other bagatelles, the work is extremely short and may be considered one sequence in length.

Although the first clang is quite brief, it is long enough for one to hear the very distinctive and contrasting parts overlap in a contrapuntal fashion. In measures 1 and 2, the first violin has a two-note bowed oscillating figure played near the bridge, the second violin has a held note in a lower register, the viola takes a short three-note figure with pizzicato, and the cello plays a bowed four-note figure near the fingerboard and in a much lower register. All the instruments use mutes. Satisfying the need for cohesion within parts with separation between the parts is achieved as each instrument plays within its own register and timbre–at the bridge, arco, pizzicato, and near the fingerboard.

The second clang is quite simple in structure and a strong contrast to the first. As the second violin dovetails in measure 3, the first violin takes a repeating triplet figure and is punctuated by one chord created in the accompanying parts. The clang is not contrapuntal because it lacks singular conjunct lines created through the similarity factor; rather it is compound monophonic.



Example 4. Anton Webern, Op. 9, #4

In measures 5, 6, and 7 another situation arises. The essential element of similarity within parts and dissimilarity between parts has been created once again, but in this instance, the first violin takes precedence over the other instruments. The second violin, viola, and cello play discrete accompanying lines while a rather eerie melody played in artificial harmonics soars above them on the first violin. Each instrument has its own rhythm, register, and articulation creating a unifying force within each part while separating the parts from one another.

One must be careful not to let the eye deceive the ear. Much non-tonal music relies on complex monophonic sequences created through polyphony as a formal device. Ligeti's use of micropolyphony is an extreme example. Imitation may be quite obvious in the score, and perhaps to the actual performer, but without the score in hand, the audience is unlikely to perceive extremely complex imitation as anything more than a block of complex sound varying in intensities, texture, register, motion, and timbre. It is somewhat ironic that much non-tonal music makes extreme use of polyphony but it is quite often not heard as such.

Of course, the foregoing examples only scratch the surface of the number of possibilities that arise in gestalt based non-tonal analysis. And what is more, the technique is not complete in itself. It is only one tool in the search for understanding contemporary works. Of course, pitch is very important and extensive analysis of pitch material is not to be overlooked. However, some form of "shock therapy" may be needed to lead students away from a myopic view of music–perceiving music to be based solely on pitch manipulation.

For the instructor, adopting the *Meta+Hodos* approach leaves room for a great deal of variation. The book was written as an introduction and is bereft of teaching materials–innovation on the part of the instructor is essential. As an example, an alternative introduction to new music could involve analysis of percussion works at the outset–works with little or no pitch material whatsoever would certainly force students to question structures in a new way.

Gestalt analysis is very flexible and quite subjective at times–something that doesn't sit as well in musical circles as it does in the visual arts. However, as always, one should be open to creative interpretations–certainly, forcing an analysis to rely on only three hierarchal levels may be entirely too limiting. Constant innovation should not be left to the sciences alone. Uncovering a means of introducing new features to a time strapped undergraduate needs creativity, persistence, and some experimentation.

However, by uncovering the physiological and psychological forces addressing why we hear sound structures in various ways, the neurosciences could make gestalt observations appear relatively uninformative–descriptive rather than revealing the cause of our perceptions. Perhaps the same fate awaits a great deal of music theory. Time will tell. But in all likelihood, the sciences will build upon basic gestalt discoveries and thus augment the tools available for theory pedagogues to delight their students for quite some time to come.

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