Schoenberg’s Op. 22 Radio Talk and Developing Variation in Atonal Music
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A common process contributes to organizing the interval structures in both tonal music and the atonal music of Arnold Schoenberg—a process he called “developing variation.” The great majority of Schoenberg’s explicit references to developing variation are found in his writings on tonal music, where it is used as a means of filling in the implications of the Grundgestalt (Grund) and this influences the realization of the musical idea (Gedanke). When analyzing his own atonal compositions, he never demonstrated more than a few components of developing variation. In addition, almost all recent scholars who invoke developing variation apply it exclusively to the analysis of tonal music. These contemporary uses of tonal developing variation usually fail to consider all the concepts within it that can carry over into atonal music. For all the above reasons, this study of atonal developing variation must begin with a description of Schoenberg’s notion of how variation works in tonal music, along with an evaluation of his statements and implications.


One scholar who does apply developing variation to the analysis of Schoenberg’s serial music is Ethan Haimo in Schoenberg’s Serial Odyssey: The Evolution of His Twelve-Tone Method, 1914-1928 (Oxford: Clarendon Press, 1990). Haimo uses the term to represent not only the “continuous process of flexible contextual relationships” (p. 73) in Schoenberg’s partially-serial music, but also his simulation of that process using segments of row forms in his mature serial music.

2First, the reader should be acquainted with the nomenclature employed here: Letter names with accidentals and octave designations represent pitches (so that middle C = C4), and letter names with accidentals designate pitch classes. Ordered pitch intervals are represented by positive and negative integers and 0. Unordered pitch intervals are denoted by 0 and positive integers, ordered pitch-class intervals by 0 and positive integers from 1 to 11, and interval classes by 0 and positive integers from 1 to 6. Angle brackets denote a succession (of pitches or intervals), curly brackets an unordered set. All these conventions are borrowed from John Rahn, Basic Atonal Theory (New York: Longman, 1980). The terms for the four kinds of interval, “ordered pitch interval, ordered pitch-class interval, unordered pitch interval, and interval class,” are borrowed from both Rahn and Allen Forte, The Structure of Atonal Music (New Haven: Yale University Press, 1973). The first three terms are Rahn’s, but his “unordered pitch-class interval” has been replaced with Forte’s familiar and more wieldy “interval class.”
Four quotations from *Fundamentals of Musical Composition* may serve as a starting point:

Homophonic music can be called the style of ‘developing variation.’ This means that in the succession of motive-forms produced through variation of the basic motive, there is something which can be compared to development, to growth.

The features of a motive are intervals and rhythms, combined to produce a memorable shape or contour, which usually implies an inherent harmony.

All the features of rhythm, interval, harmony, and contour are subject to various alterations. Frequently, several methods of variation are applied to several features simultaneously; but such changes must not produce a motive-form too foreign to the basic motive.

Every element or feature of a motive or phrase must be considered to be a motive if it is repeated or varied, i.e. if it is repeated with or without variation.3

According to these quotations, taken from the third chapter of *Fundamentals* (“The Motive”), tonal developing variation can operate on motives and phrases, altering their rhythmic and intervallic features. Motivic (or phrase) identity can be retained by preserving the original form of some features while altering the others.

The four quotations provide little in the way of definitions for tonal motive, phrase, or feature; the discussion which follows is an attempt to flesh out these concepts. The chapter on tonal motive in *Fundamentals* includes two statements that help define the term. The last of the four statements above implies that any unit that is repeated or varied qualifies as a motive. Elsewhere, however, Schoenberg suggests limitations on size when he asserts that “any rhythmicized succession of notes may be used as a basic motive, but there should not be too many different features.”4 Still, a variety of sizes of units can fulfill these two criteria: units including a pitch succession and duration succession of two or three members, larger units formed by overlapping or juxtaposing such particles, and even units that comprise the structural pitches of a still larger unit such as a phrase or group of phrases. The pitch/duration successions that result from varying a motive are called “motive-forms” by Schoenberg and will be so called in this article. Motivic (or phrase) identity can be retained by preserving the original form of some features while altering the others.

Example 1. Example 30 in *Fundamentals of Musical Composition*

A phrase built from a broken-chord derivative (Ex. 21d)
must be considered to be a motive if it is treated as such, i.e. if it is repeated with or without variation,” he is recognizing that phrases in tonal music may also function motivically; but he distinguishes between motive and phrase when naming units in his examples. Some of the ways in which phrase endings are marked are addressed in chapter 2 of Fundamentals (“The Phrase”). They include “rhythmic reduction” (splitting a duration succession into segments and repeating one or more of them), “melodic relaxation through a drop in pitch,” and “the use of smaller intervals and fewer notes,” among others.⁵

Elsewhere in the chapter from which the four quotations are taken, Schoenberg defines the variation component of developing variation: “variation . . . is repetition in which some features are changed and the rest preserved.”⁶ This statement shows how crucial the concept of “feature” is to varying variation. We cannot determine which features are changed by varying an original motive’s forms. It is important to understand this concept, for changes in features cause remoteness. Yet Schoenberg does not define “feature” carefully enough in Fundamentals chapter 3. He does not specify what the variable features of motive or phrase are, but only names the categories into which they fall, such as rhythm and intervallic content. He brings forward examples of motives from the literature and asserts that their rhythmic or intervallic features are simple or complex, assuming that the reader will ascertain what specific feature(s) he is discussing.

At the end of chapter 3, Schoenberg presents a list of motive variation kinds. This list will help us to identify specific variable features of a motive or phrase and to place them in categories that agree with those recommended by Schoenberg.

The rhythm is changed:
1. By modifying the length of the notes
2. By note repetitions
3. By repetition of certain rhythms
4. By shifting rhythms to different beats
5. By addition of upbeats
6. By changing the meter—a device seldom usable within a piece

The intervals are changed:
1. By changing the original order or direction of the notes
2. By addition or omission of intervals
3. By filling up intervals with ancillary notes
4. By reduction through omission or condensation
5. By repetition of features
6. By shifting features to other beats

The harmony is changed:
1. By the use of inversions
2. By additions at the end
3. By insertions in the middle
4. By substituting a different chord or succession
5. By semi-contrapuntal treatment of the accompaniment

The most concrete quality of a motive affected by each kind of variation shall be designated a feature. The variation methods under the “rhythm” heading in Schoenberg’s list affect either duration succession (the series of note values projected by the motive) or metrical context (when this series occurs in a metrical framework). These are the rhythmic features of a motive. His “intervallic” variations 1 through 5 affect the motive’s pitch succession: this is an intervallic feature that shall also be called the “melodic feature.” (Note that items 2 through 4 are presented as alterations to the motive’s ordered pitch interval succession, but they also affect, and are

⁵Ibid., 3.
⁶Ibid., 9.
⁷Ibid., 10.
more easily defined as variations on the pitch succession.) The “harmonic” variation kinds affect the motive’s harmonic succession (the series of verticals projected by the pitch succession and its accompaniment, and voice leadings involving pitches in those verticals).

Another intervallic feature not mentioned by Schoenberg in the list ending chapter 3 is the tonal context, the function of the motive’s pitch succession and harmonic succession in a key. Changing the tonal context of a motive is a variation that usually occurs between motive-forms separated by a long span of time and has to do with the overall design of the tonal composition. This design, the composition’s Gedanke or idea, involves producing tension by fostering uncertainty about the motive’s correct tonal and metrical contexts near the beginning of the piece and resolving that tension by asserting correct tonal and metrical contexts near the end. Patricia Carpenter’s article “Grundgestalt as Tonal Function” (see footnote 1) illustrates how such a process gives rise to key areas and in the course of Beethoven’s Piano Sonata in F Minor, Op. 57.

To summarize, then, a motive (or phrase that functions motivically) has three features in its interval category—its pitch succession, its harmonic succession, and its tonal context; the rhythmic category includes its duration succession and its metrical context. If we want to measure how remote a variation of one of these features renders a form from its original, we must consider the aspects of each feature, which are more abstract ways of describing the feature. It is easy to identify a motive-form resulting from multiple variations of a feature of the original as more remote than a form resulting from a single variation. But when two motive-forms result from different single variations of the same feature, comparing the numbers of aspects changed by the variations provides a basis for judging one form to be more remote. For example, interval octave complementation (changing the direction of the notes) changes the pitch succession of a motive: \(<C_4,E_4,G_4>\) is transformed to \(<C_4,E_3,G_3>\) by it, for instance. And several of the pitch succession’s aspects are also altered by it: the ordered pitch interval succession changes from \(<+4,+3>\) to \(<-8,+3>\), and the pitch set from \{C4,E4,G4\} to \{C4,E3,G3\}. The melodic contour \(<0,1,2>\) becomes \(<2,0,1>\). But some of the pitch succession’s aspects are preserved: the pitch-class succession \(<C,E,G>\), the pitch-class set \{C,E,G\}, and the total interval-class content \{3,4,5\}. Thus octave complementation would produce a less remote motive-form than a variation (interval expansion, for example) that changes the pitch-class succession, pitch-class set, and total interval-class content as well as changing most of the aspects altered by complementation.

The reader will notice that melodic contour has been included among the aspects of the pitch-succession feature that change under octave complementation. Following Morris, Marvin/Laprade, and Friedmann, melodic contour is defined as an account of the relative registral positions of pitches in a succession, and terminology is adopted to represent individual contours according to this terminology. The pitches in a succession of cardinality \(n\) are numbered from lowest to highest, using integers from 0 to \((n-1)\). Contour is considered an aspect of pitch succession rather than a separate feature because it is determined completely by pitch succession; that is, one pitch succession cannot have different melodic contours. In the same way, a duration succession has a rhythmic-contour aspect.8

Having defined some concepts that contribute to the “variation” component of tonal developing variation (some of which can also be carried over into atonal developing variation, as shall be shown), we should now ascertain in what sense(s) such variation develops. According to *Fundamentals* and other writings of Schoenberg, a “succession of motive-forms produced through variation of the basic motive” performs two functions that make it developmental. It fulfills implications of the original motive, and it delimits a segment of the musical form and characterizes that segment in such a way that it can carry out its role within the form.

Schoenberg’s essay “Folkloristic Symphonies” illustrates one way succeeding motive-forms can fulfill implications of an initial motive.¹⁰ (See Ex. 2 for a reproduction of his Exx. 1–3.) Schoenberg’s Example 1 presents four varied forms of the motive of mm. 1–2 in the principal theme of the first movement of Beethoven’s Fifth Symphony.¹¹ The original motive (mm. 1–2) and its first variation (mm. 3–4) suggest two different tonal contexts, 3–i–2–7 in Eb major and 5–3–4–2 in C minor. According to Schoenberg, the motive forms in mm. 5–8 are motivated by Beethoven’s need to establish one of these contexts as the correct one. The interval <G₄,E₄> in mm. 5–6 is surrounded by a harmony that strongly suggests the C-minor tonic context, and <E₅,C₅> in mm. 7–8 confirms this context by ending the motive-form on C. The later motive-forms answer a question about tonal context posed by the earlier ones, fulfilling their implications in that way.

In addition, developing successions of motive-forms have specific functions within a musical form. For instance, Schoenberg’s discussion in *Fundamentals* of sentence structure demonstrates how a certain kind of succession, liquidation, gives the continuation its unique character and enables the sentence to come to a cadence. Liquidation is “gradually eliminating characteristic features [of a motive or phrase], until only uncharacteristic ones remain, which no longer demand a continuation.”¹² A typical way to liquidate the original motive in a succession is to apply repeated reductions to it. Reduction, one of the variation kinds listed by Schoenberg under “intervals,” subtracts pitches from the motive’s pitch succession and durations from the duration succession.

Schoenberg’s analysis of the beginning of Beethoven’s Piano Sonata, Op. 2 No. 1 will illustrate a liquidation in the continuation of a sentence (see Ex. 3).¹³ A continuation is

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¹¹The astute reader will notice that Schoenberg has left out m. 4 of the printed score in his examples, a half-note D₄ with no fermata.

¹²Fundamentals, 58.

¹³Ibid., 63.
Example 3. Example 52 in *Fundamentals*

change intervallic and rhythmic features of a motive or phrase such as pitch succession, harmonic succession, tonal context, duration succession, or metrical context. Along with the feature, each variation changes aspects of the feature, and the number of aspects changed serves as an index of remoteness from the original motive. Two considerations govern the successions of motive-forms produced by variation: later forms should fulfill the implications of earlier forms, and the succession should delimit a segment of the musical form and enable that segment to perform its function within the form.

* * *

It is the purpose of this article to show that a concept of developing variation parallel to tonal variation helps organize interval structures in one of Schoenberg’s atonal pieces. He sketched a few moments of atonal variation in a lecture on the *Four Orchestral Songs*, Op. 22, prepared in 1932 and broadcast over the Frankfurt Radio. The discussion which follows extends and systematizes Schoenberg’s remarks, highlighting parallels and accounting for differences between tonal and atonal variation, evaluating the effectiveness of Schoenberg’s and this author’s terms and categories for explaining atonal music, and demonstrating atonal variation in a few analyses. The present description of atonal variation will be limited to variations of the melodic feature of the motive, so that the terms “motive,” “melodic feature,” and “ordered pitch interval succession” become interchangeable in the discourse. Certainly, rhythmic structures in the Op. 22

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songs also derive from variations on the duration successions and metrical contexts of motives and motivic overlappings. But limiting the scope of atonal developing variation to melodic variations will make the subject easier to introduce.

Limits may be established on Schoenberg’s concept of original, unvaried motive in the lecture, through interpreting his remarks on the motive of the first song, “Seraphita.” He does not define unvaried motive in these remarks, but he implies its characteristics through what he identifies as such in the song. He uses the term “motive” to refer only to small particles (not to overlappings of particles), and he differentiates these particles from small tonal motives in three ways: by treating ordered pitch-interval succession rather than pitch succession as the motive’s melodic feature; by including a class of ordered pitch-interval successions rather than a single succession within the melodic feature of unvaried motive; and by restricting himself to defining one motive—one class of small particles—rather than interpreting all pitch successions as small motives, that is, as subject to variation or repetition. An ordered pitch-interval succession is evident in Examples 5 through 11a of the radio talk (shown here in Ex. 4). Schoenberg speaks of combinations of minor thirds and minor seconds, mentioning only once the pitches resulting from them (his Ex. 11a) and refusing to consider those pitches’ significance. Why the shift in emphasis from pitch to interval? The reason may have to do with the variation kinds Schoenberg proposes for the atonal motive, most of which were probably conceived as, and are certainly easier to define as, alterations to an ordered pitch-interval succession. Take interval expansion by semitone: we can define this as the addition of the positive or negative integer 1 to either or both members of an ordered pitch-interval succession, but defining it as an alteration to a pitch succession is more complicated.

Another important peculiarity of Schoenberg’s Examples 5 through 9 is that he does not establish one ordered pitch-interval succession—one combination of minor second and third—as the definitive melodic feature of the motive in “Seraphita.” Nor does he attempt to define variations by which one of these successions can bring about the others. Furthermore, Schoenberg’s first use of the term “motive” in the radio talk’s analytical section embraces all these combinations of minor second and third, plus others. Schoenberg uses “fixed motivic unit” in that discussion to represent all forms characterized by “the sequence of minor second and third,” and asserts that this class of successions can be “varied and developed” to create new motive-forms.15 The class of successions he seems to have in mind for unvaried motive are the two-interval successions generated by combining ordered pitch intervals +1 or −1 with +3 or −3. These eight successions comprise Category A, listed in Table 1. The reader will note that these successions belong to two different set classes, without exhausting either: four successions in 3–2 (013) and four in 3–3 (014). What they do exhaust is the consecutive unordered pitch-interval set {1,3}; that is, every collection having two unordered pitch intervals between its adjacent pitches, in which one interval is 1 and the other is 3, belongs to Category A.16

Table 1. Motivic Category A in “Seraphita”

\[
\begin{align*}
&<-1, +3>  \quad<-1, -3>  \quad<-3, +1>  \quad<-3, -1>
\quad<-1, +3>  \quad<-1, -3>  \quad<-3, +1>  \quad<-3, -1>
\end{align*}
\]

Accepting a class of successions as motive rather than a single succession makes a wider variety of motive-forms available through variation. In fact, it is thus possible to explain all interval structures in “Seraphita” as variations of the original motive or as variations of overlappings of the original motive with its varied forms. Deriving everything from one motive demonstrates unity in the song, and—unless the original motive itself has an inconspicuous profile—forests questionable motive identifications like some of those in Schoenberg’s tonal motivic analyses. Most importantly, though, it enables the listener and analyst to make consistent judgments about the remoteness of each interval succession based on the number and kinds of variations needed to derive it from the common motivic source. Two or more motives would create two or more different scales of remoteness which would overlap at many points, making it impossible to determine the direction of development in successions of motive-forms.

In the discussion of “Seraphita,” Schoenberg demonstrates three variation kinds with respect to the atonal motive’s melodic feature. The first is an octave complementation of one of its ordered pitch intervals, a Category B form. (This variation corresponds to “changing the direction of the notes” in his list of tonal variation kinds.) He illustrates complementations of one ordered pitch interval in his Examples 11b–12 (shown here in Ex. 5). Such variations can give rise to twenty-four new forms, comprising Category B (listed in Table 2).

Table 2. Motivic Category B

\[
\begin{align*}
&<+3, -11>  \quad++1, -9>  \quad++11, -9>
\quad<-3, +11>  \quad+-1, +9>  \quad+-1, +9>
\quad<+3, +11>  \quad++1, +9>  \quad++11, +9>
\quad<-3, -11>  \quad+-1, -9>  \quad+-1, -9>
\quad<+11, -3>  \quad++9, -1>  \quad++9, -11>
\quad<-11, +3>  \quad+-9, +1>  \quad+-9, +11>
\quad<+11, +3>  \quad++9, +1>  \quad++9, +11>
\quad<-11, -3>  \quad+-9, -1>  \quad+-9, -11>
\end{align*}
\]


16Other authors have suggested using sets of consecutive intervals as primary elements in the analysis of atonal music. For example, Alan Chapman’s VP (voice pairs) interval set consists of the set of ordered pitch-class intervals found between adjacent pitches in a vertical. See Chapman, “Some Intervallic Aspects of Pitch-Class Set Relations,” Journal of Music Theory 25 (1981): 275–90.

However, there has been an additional development: the minor second B-C

\[ \text{No. 11b} \]

has turned into a major seventh B-C,

\[ \text{No. 11c} \]

a new shape which turns up again immediately in the fifth phrase as Bb-B~, with its appended minor third B-D

In lecture Examples 18d and 32, Schoenberg highlights results of a second kind of variation of melodic feature, the counterpart to the tonal variation “changing the order of the notes.” This variation kind is the only one of the three that is easier to define on a pitch succession than on an ordered pitch-interval succession. It represents a Category-A form with a pitch succession, then reorders the pitches to form a new ordered pitch-interval succession. Example 6 illustrates the process, which shall be called “pitch reordering.” Sixteen Category-C forms come about by this process, listed in Table 3.

Example 6. Illustration of a pitch reordering

\[ <-1, -3> \rightarrow \{\text{ pitches reordering }\} \rightarrow <-4, +3> \]

Table 3. Motivic Category C

\[
\begin{array}{cccc}
+1, +2 & +1, -4 & +3, -4 & +2, -3 \\
-1, -2 & -1, +4 & -3, +4 & -2, +3 \\
+2, +1 & +4, -1 & +4, -3 & +3, -2 \\
-2, -1 & -4, +1 & -4, +3 & -3, +2 \\
\end{array}
\]

The third kind of variation of Category-A forms is described in Schoenberg’s Examples 19–24 and the surrounding commentary, reproduced as Example 7. It has no correspondent among Schoenberg’s tonal variation kinds. These variations expand by semitone one or both ordered pitch intervals of the original form. Interval expansion gives rise to twenty-four Category-D forms, listed in Table 4.

Table 4. Motivic Category D

\[
\begin{array}{cccc}
*<-2, +3> & *<-1, +4> & <-2, +4> & *<-1, -4> \\
*<-2, +3> & *<-1, +4> & <-2, +4> & *<-1, -4> \\
+2, +1 & +4, -1 & +4, -3 & +3, -2 \\
-2, +3 & -4, +1 & -4, +3 & -3, +2 \\
*<-2, -3> & *<-1, +4> & <-2, +4> & *<-1, -4> \\
*<-2, -3> & *<-1, +4> & <-2, +4> & *<-1, -4> \\
<-3, 2 & *<-1, +4> & <-2, +4> & <-3, +2 \\
<-3, -2 & <+1, -4> & <+2, -3> & <+3, -2> \\
<-3, -2 & <+1, -4> & <+2, -3> & <+3, -2> \\
<-3, -2 & <+1, -4> & <+2, -3> & <+3, -2> \\
<-3, -2 & <+1, -4> & <+2, -3> & <+3, -2> \\
\end{array}
\]

At this point, a few comments about the mathematical structure underlying the three variation kinds are in order. We avoid calling the variation kinds giving rise to Categories B, C, and D “operations,” “transformations,” or even “functions,” because each category does not arise from a single function, but from a family of functions. Three functions generate Category-B forms: B₁ octave-complements the first interval of an ordered pitch-interval pair, B₂ the second interval, and B₃ both intervals. Five functions give rise to Category-C forms: each function from C₁ to C₅ changes an ordered pitch-interval pair into a three-pitch succession, reorders the three pitches according to one of five schemes \(<a,b,c>\) to \(<a,c,b>\) in \(C₁\), \(<b,a,c>\) in \(C₂\), \(<b,c,a>\) in \(C₃\), \(<c,a,b>\) in \(C₄\), or...