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Schoenberg's Op. 22 Radio Talk and Developing Variation in Atonal Music

Jack Boss

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 variation plays a role in fulfilling the implications of the initial material (*Grundgestalt*); this fulfillment is the realization of the musical idea (*Gedanke*). When analyzing his own atonal compositions, Schoenberg 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.¹ These

¹See: David Epstein, *Beyond Orpheus: Studies in Musical Structure* (Cambridge: MIT Press, 1979); Patricia Carpenter, “*Grundgestalt* as Tonal Function,” *Music Theory Spectrum* 5 (1983): 15–38; Graham H. Phipps, “A Response to Schenker’s Analysis of Chopin’s Etude, Opus 10, No. 12, Using Schoenberg’s *Grundgestalt* Concept,” *Musical Quarterly* 69 (1983): 543–69; Severine Neff, “Aspects of *Grundgestalt* in Schoenberg’s First String Quartet, Op. 7,” *Theory and Practice* 9 (1984): 7–56; Walter Frisch, *Brahms and the Principle of Developing Variation* (Berkeley and Los Angeles: University of California Press, 1984); and Janet Schmalfeldt, “Berg’s Path to Atonality: The Piano Sonata, Op. 1,” in *Alban Berg: Analytical and Historical Perspectives*, ed. Robert P. Morgan and David Gable (Oxford: Clarendon Press, 1991), 79–109.

One scholar who does apply developing variation to the analysis of Schoenberg’s serial music is Ethan Haimo in *Schoenberg’s Serial Odyssey: The Ev-*

olution 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 treated as such, 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 feature or 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

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

A phrase built from a broken-chord derivative (Ex. 21d)

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 particles (dyads) and motives formed by overlapping them, as well as motive-forms created by varying particles and larger forms, are illustrated in Schoenberg’s Example 30 in *Fundamentals* (reprinted as Ex. 1). Some of the particles that meet Schoenberg’s criteria are nonetheless questionable segments. The initial descending major second (motive c) is indeed repeated and varied four times, but the profile of this “motive” is not distinct enough to make these variations more than byproducts of the diatonic system. All diatonic pieces repeat and vary Schoenberg’s motive c.

Example 1 also illustrates Schoenberg’s concept of tonal phrase: a unit formed by overlapping or juxtaposing larger motives and motive-forms (and, by extension, motivic particles and particle-forms), whose ending is marked by typical melodic and rhythmic characteristics. When Schoenberg asserts that “every element or feature of a motive or phrase

⁴Ibid., 9.

³Arnold Schoenberg, *Fundamentals of Musical Composition*, 2d ed., ed. Gerald Strang and Leonard Stein (London: Faber and Faber, 1970), 8–9. Hereafter *Fundamentals*.

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 tonal developing variation. We cannot determine which of the forms produced by varying the original motive are more remote from it without thoroughly understanding 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 complex or simple, 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.

⁵Ibid., 3.

⁶Ibid., 9.

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

The *melody* is adapted to these changes:

1. By transposition
2. By addition of passing harmonies
3. By ‘semi-contrapuntal’ treatment of the accompaniment⁷

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

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 individual harmonies in the first movement 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: $\langle C4, E4, G4 \rangle$ is

transformed to $\langle C4, E3, G3 \rangle$ by it, for instance. And several of the pitch succession’s aspects are also altered by it: the ordered pitch interval succession changes from $\langle +4, +3 \rangle$ to $\langle -8, +3 \rangle$, and the pitch set from $\{C4, E4, G4\}$ to $\{C4, E3, G3\}$. The melodic contour $\langle 0, 1, 2 \rangle$ becomes $\langle 2, 0, 1 \rangle$. But some of the pitch succession’s aspects are preserved: the pitch-class succession $\langle C, E, G \rangle$, 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 their 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

⁸Robert Morris, *Composition with Pitch Classes* (New Haven: Yale University Press, 1987), 26–33; Elizabeth West Marvin and Paul A. Laprade, “Relating Musical Contours: Extensions of a Theory for Contour,” *Journal of Music Theory* 31 (1987): 225–67; Michael L. Friedmann, “A Methodology for the Discussion of Contour: Its Application to Schoenberg’s Music,” *Journal of Music Theory* 29 (1985): 223–48. All four authors represent contours in the way indicated in this article, although they call the resulting integer succession by different names (Marvin and Laprade: c-segment; Morris and Friedmann: contour class) and devise a variety of ways to define the equiv-

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.⁹ (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.¹⁰ The original (mm. 1–2) and its first variation (mm. 3–4) suggest two different tonal contexts, $\hat{3}-\hat{1}-\hat{2}-\hat{7}$ in E \flat major and $\hat{5}-\hat{3}-\hat{4}-\hat{2}$ 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 $\langle G4, E\flat4 \rangle$ in mm. 5–6 is surrounded by a harmony that strongly suggests the C-minor tonic context, and $\langle E\flat5, C5 \rangle$ in mm. 7–8 confirms this context by ending the motive-form on C. The later

Example 2. Examples 1–3 in “Folkloristic Symphonies,” *Style and Idea*

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.”¹¹ 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).¹² A continuation is

alence and measure the similarity of contours. Marvin has also used her terminology to describe and relate rhythmic contours, in “The Perception of Rhythm in Non-Tonal Music: Rhythmic Contours in the Music of Edgard Varèse,” *Music Theory Spectrum* 13 (1991): 61–78.

⁹Schoenberg, “Folkloristic Symphonies” (1947), in *Style and Idea: Selected Writings of Arnold Schoenberg*, rev. paperback ed., ed. Leonard Stein with translations by Leo Black (Berkeley and Los Angeles: University of California Press, 1984), 164.

¹⁰The 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.

¹¹*Fundamentals*, 58.

¹²*Ibid.*, 63.

Example 3. Example 52 in *Fundamentals*

a) Op. 2/1-1

found in mm. 5–8. In measures 5–6, the phrase stated in tonic and dominant in mm. 1–4 is reduced by subtracting most of its ascending arpeggio. Motive b results. In mm. 7–8 motive b is reduced by subtracting pitches and intervals to form the particle Schoenberg calls motive c. Comparing motive c to motive b and the original phrase, we see that certain features and aspects of features—particularly the metrical context and melodic and rhythmic contours, which made the earlier forms better able to retain their identity under variation—have been reduced out in motive c. These c forms “no longer demand” a continuation, nor can they support one. Having halted the drive toward variation, Beethoven can close off the sentence with a half cadence. In this way, motive and phrase variation characterizes the continuation in accordance with its concluding role.

To summarize: tonal developing variation affects various kinds of motives, as well as phrases. Specific variations

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 components of atonal variation in a lecture on the *Four Orchestral Songs*, Op. 22, prepared in 1932 for a broadcast over the Frankfurt Radio.¹³ 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

¹³The original typescript of the lecture, in German, is in the archive of the Arnold Schoenberg Institute in Los Angeles. An English translation by Claudio Spies was published as “Analysis of the Four Orchestral Songs Op. 22,” *Perspectives of New Music* 3, no. 2 (Spring-Summer 1965): 1–21; and reprinted in *Perspectives on Schoenberg and Stravinsky*, 2d ed., ed. Benjamin Boretz and Edward T. Cone (New York: Norton, 1972), 25–45. Quotations shall be taken from Spies’s translation.

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 limiting himself to discussing one motive—one class of successions—in the song, rather than identifying as motive every small particle that undergoes variation or repetition.

The emphasis on ordered pitch-interval succession is evident in Examples 5 through 11a of the radio talk (shown here in Ex. 4).¹⁴ 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.

Example 4. Examples 5–11a in "Analysis of the Four Orchestral Songs Op. 22"

However, let the following demonstrate the unconscious sway of musical logic. The clarinet melody



No. 5 (at the piano, first phrase)

consists of a series of minor seconds



No. 6 (Piano)

to which an ascending minor third is appended.



No. 7 (Piano)

In the ensuing phrase the minor third and second are combined to yield the following shape (*Gestalt*):



No. 8 (Piano)

And similarly in the third phrase.



No. 9 (Piano)

Here, both times, the minor third led to the minor second; by the fifth phrase this order has already been reversed.



No. 10 (Piano)

The half-step A-G# comes first; the minor third G#-B follows.



No. 11a (Piano)

¹⁴"Analysis of the Songs Opus 22," *Perspectives on Schoenberg*, 28–29.

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”

<-1, +3>	<-1, -3>	<-3, +1>	<-3, -1>
<+1, -3>	<+1, +3>	<+3, -1>	<+3, +1>

Accepting a class of successions as motive rather than a single succession makes a wider variety of motive-forms avail-

¹⁵Ibid., 30–31.

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.

able 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—forestalls 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 his discussion of “Seraphita,” Schoenberg demonstrates three variation kinds with respect to the atonal motive's melodic feature. The first kind is an octave complementation of one or both ordered pitch intervals of a Category-A 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

<+3, -11>	<+1, -9>	<+11, -9>
<-3, +11>	<-1, +9>	<-11, +9>
<+3, +11>	<+1, +9>	<+11, +9>
<-3, -11>	<-1, -9>	<-11, -9>
<+11, -3>	<+9, -1>	<+9, -11>
<-11, +3>	<-9, +1>	<-9, +11>
<+11, +3>	<+9, +1>	<+9, +11>
<-11, -3>	<-9, -1>	<-9, -11>

Example 5. Examples 11b–12 in “Analysis of Op. 22”

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



No. 11b

has turned into a major seventh B-C,



No. 11c

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



No. 12 (Piano)

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



Table 3. Motivic Category C

<+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>

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

*<-2, +3>	*<-1, +4>	<-2, +4>
*<+2, -3>	*<+1, -4>	<+2, -4>
<-2, -3>	<-1, -4>	<-2, -4>
<+2, +3>	<+1, +4>	<+2, +4>
*<-3, +2>	*<-4, +1>	<-4, +2>
*<+3, -2>	*<+4, -1>	<+4, -2>
<-3, -2>	<-4, -1>	<-4, -2>
<+3, +2>	<+4, +1>	<+4, +2>

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

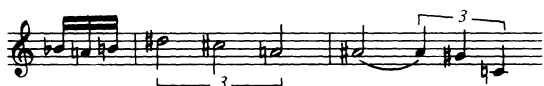
Example 7. Examples 19–24 in “Analysis of Op. 22”

In the second section the voice repeatedly employs the three-note motif in a variety of ways. For example, at the words “laute Angst,”



No. 19 (Piano)

or at “in deines Ruheortes”



No. 20 (Piano)

where, to be sure, changes have become evident, so that



No. 21 (Piano)

attests to the original shape



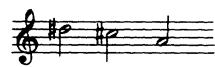
No. 22 (Piano)

—if one disregards the ornamental half-step—



No. 23 (Piano)

and where the minor third has become a major third. To this will be added a further transformation; the minor second likewise becomes major.



No. 24 (Piano)

$\langle c, b, a \rangle$ in C_5), then determines the ordered pitch intervals of the new pitch succession. The forms of Category D result from three functions: D_1 expands the first ordered pitch interval of a pair by one semitone (that is, it adds 1 if the interval is greater than or equal to 0, and adds -1 if the interval is less than 0), D_2 expands the second interval, and D_3 both intervals.

Some of these eleven functions form groups of operations in the mathematical sense; others do not. The octave complementation functions B_1 , B_2 , and B_3 are not mathematical transformations on Category A, for none of them map the eight forms of Category A into themselves. But they are transformations on the universe U_1 of all ordered pitch-interval pairs in which neither interval is less than -11 , greater than $+11$, or equal to 0. (These limitations were assumed in the definition of each function as an octave complementation.) They are also operations on U_1 , since each results in a one-to-one mapping onto U_1 . Together with the identity operation, the B operations form a group: any composition of identity, B_1 , B_2 , and B_3 has the same effect as one of the four operations, and each operation is its own inverse. Likewise, functions C_1 through C_5 are not transformations on Category A, but are transformations and operations on the universe U_2 of all ordered pitch-interval pairs. Together with identity, C_1 through C_5 form a group of operations on U_2 ; any composition of operations has the same effect as an operation within the group: C_1 and C_2 are their own inverses, C_3 and C_4 are inverses of each other, and C_5 is its own inverse.

The interval-expansion functions D_1 through D_3 , like the five C functions, are transformations not on Category A, but on the universe U_2 of all ordered pitch-interval pairs. Unlike the C functions, however, none of D_1 , D_2 , or D_3 are operations on U_2 , because none of them map U_2 onto itself. (Ordered pitch-interval pairs having 0 as the first interval cannot be attained by applying D_1 or D_3 to some ordered pitch-interval pair, and pairs having 0 as the second interval cannot

be attained by applying D_2 or D_3 to some pair.) Therefore, D_1 through D_3 do not form a group of operations on U_2 ; neither do the eleven octave-complementation, reordering, and expansion functions taken together form a group of operations.¹⁷

In the radio talk, Schoenberg highlights two combinations of the variation kinds described above: octave complementations of the results of pitch reordering and interval expansion. He illustrates only these two, it seems, because results of the other four combinations duplicate results of these combinations and of individual variations for the most part. He does not identify forms generated by combined variations individually as motive-forms, but he does call attention to larger forms created by overlapping them. One instance is the first part of his Example 15 (shown here as Ex. 8). Applying complementation to Category-C forms creates 48 new forms, here named Category C2, and applying complementation to D forms generates 72 forms in Category D2.

Now, it is pointless to identify the three kinds of motive variation and their combinations in an analysis of Schoenberg's song without determining which of them produce motive-forms more remote from the unvaried motive. Variation in atonal music, like variation in tonal music, "develops" in the sense that it creates successions that increase and decrease in remoteness. We can use the same criteria in "Seraphita" for judging the relative remoteness of motive-forms that we use in tonal music. Forms that result from multiple variations to a feature are more remote than those in which that feature is varied once, and variations that change a larger number of a feature's aspects produce a more remote form than variations that change a smaller number of aspects.

¹⁷These definitions for terms in mathematical group theory come from chapter 1 of David Lewin, *Generalized Musical Intervals and Transformations* (New Haven: Yale University Press, 1987).

Example 8. Example 15 in "Analysis of Op. 22"

No. 15 (Piano)

$\langle -1, -8, +2, +1 \rangle$

$\langle -1, -8 \rangle$ = octave complementation of $\langle -1, +4 \rangle$ from Category C

$\langle -8, +2 \rangle$ = octave complementation of $\langle +4, +2 \rangle$ from Category D

$\langle +2, +1 \rangle$ = Category-C form

Since ordered pitch-interval succession supplants pitch succession as the melodic feature of an atonal motive, only its aspects shall be considered when evaluating an atonal variation's power to induce remoteness. Most of these aspects can be thought of as equivalence classes surrounding each Category-A succession, which are formed by different equivalence relations when direction and/or ordering are disregarded in describing the Category-A succession. The aspects to be considered here are the ordered pitch-class interval succession, and sets of consecutive unordered pitch intervals and consecutive interval classes. In addition, the interval-class succession, the total interval-class content, and the melodic contour shall be included.¹⁸ Table 5 lists the aspects of ordered pitch-interval succession $\langle -3, -1 \rangle$.

¹⁸Interval-class succession is equivalent to Allen Forte's notion of "interval succession" in *The Structure of Atonal Music* (p. 63). His notion of "basic interval pattern" is equivalent to consecutive interval-class set.

Table 5. Equivalence classes containing ordered pitch-interval succession

Ordered pitch-interval succession	$\langle -3, -1 \rangle$
1) Ordered pitch-class interval succession	$\langle 9, 11 \rangle$
2) Interval-class succession	$\langle 3, 1 \rangle$
3) Consecutive unordered pitch-interval set	$\{1, 3\}$
4) Consecutive interval-class set	$\{1, 3\}$
5) Total interval-class content	$\{1, 3, 4\}$
6) Melodic contour	$\langle 2, 1, 0 \rangle$

Transformation of a Category-A form by octave complementation, pitch reordering, and interval expansion, results in progressively more changes of the aspects of its ordered pitch-interval succession (see Table 6). Octave complementation preserves the most aspects of the original, four in all; pitch reordering preserves only the total interval-class content of the original form; and interval expansion preserves only the melodic contour.

The observation that pitch reordering and interval expansion alter and preserve the same number of aspects of an ordered pitch-interval succession might lead one to assert that these two variations generate equally remote motive-forms in atonal music. To make that assertion, one would have to assume that changing each aspect has an equal effect in inducing remoteness, an unprovable assumption. But which changes incur remoteness more? If changing the contour encourages perception of a motive-form as more remote as compared with changing its total interval content, then one would have to weight changes in contour more heavily, making Category-C forms more remote than D forms. But if changing the total interval content encourages perception of a form as more remote as compared with changing its contour, then Category-D forms would have to be considered more remote. At this time this author cannot present convincing evidence

that changing either aspect has a greater effect, so by default C and D forms shall be considered equally remote, in a general sense, from the motivic source.

Notwithstanding the uncertainty about C and D forms, the labelling of motive occurrences and motive-forms as members of Categories A, B, C, and D locates their positions in an ordering that increases in remoteness from the motivic source. This ordering constitutes a general remoteness scale for all of "Seraphita." Forms belonging to B, C, and D are clearly more remote than the untransformed successions of Category A (which are the motivic sources), and Category-C forms are more remote than B forms because reordering changes all the aspects of ordered pitch-interval succession that octave complementation changes, plus three more (refer to Table 6). As for forms in Categories C2 and D2, they are generated by two variations and thus are more remote than all those arising from a single variation. As with Categories C and D, the author cannot prove which of C2 and D2 contains more remote forms. The reader must remember that the ranking of Categories B through D2 does not imply equal spacing: it is not implied that C forms are twice as remote as B forms, or that C2 and D2 forms are $\frac{3}{2}$ as remote as C and D forms.

Although it seems impossible to distinguish in a general way which of Category C or D contains more remote forms, Schoenberg sometimes uses the order of motive-forms in a particular succession in such a way as to suggest that one category is more remote. For example, he sometimes begins with A and B forms, follows these with C forms, then D, and finishes the succession with C2, D2, and nonmotivic forms. In this way, a particular context suggests that changing the interval content produces a more remote form than changing the contour, although there is no way to prove the validity of this suggestion for the entire piece.

At this point it will be instructive to trace variations of the motive's melodic feature in a small passage from "Seraphita,"

Table 6. Changes in equivalence class resulting from application of the three variation kinds to Category-A form $\langle -3, -1 \rangle$

	Ordered pitch-interval succession	Ordered pc-interval succession	Interval-class succession
A	$\langle -3, -1 \rangle$	$\langle 9, 11 \rangle$	$\langle 3, 1 \rangle$
B	$\langle +9, +11 \rangle$	$\langle 9, 11 \rangle$	$\langle 3, 1 \rangle$
C	$\langle +4, -3 \rangle$	$\langle 4, 9 \rangle$	$\langle 4, 3 \rangle$
D	$\langle -4, -2 \rangle$	$\langle 8, 10 \rangle$	$\langle 4, 2 \rangle$
	Consecutive unordered pitch-interval set	Consecutive interval-class set	Total interval-class content
A	{1,3}	{1,3}	{1,3,4}
B	{9,11}	{1,3}	{1,3,4}
C	{3,4}	{3,4}	{1,3,4}
D	{2,4}	{2,4}	{2,4,6}
Melodic contour			
A		$\langle 2, 1, 0 \rangle$	
B		$\langle 0, 1, 2 \rangle$	
C		$\langle 0, 2, 1 \rangle$	
D		$\langle 2, 1, 0 \rangle$	

attempting to determine how the passage exemplifies developing variation. Example 9 provides such an analysis for mm. 20–23 of the voice part. The segmentation strategy employed here includes imbricating within each of the two phrases; the even streams of sixteenths in both blur durational clues to segmentation and seem to call for such an approach. Also, we are concerned mainly with pairs of consecutive ordered pitch intervals, even though the motive-forms of “Seraphita” may also occur as ordered pitch-intervals between nonconsecutive structural pitches of larger forms. The reason for limiting consideration to consecutive intervals is to avoid having to present a lengthy discussion of criteria for distinguish-

ing structural from ornamental pitches in atonal music. But ornamental status shall be claimed for two pitches in Example 9. The $E\flat_4$ on “wind-” may be considered a neighbor note, because it meets two criteria that Schoenberg suggests in his Example 23 (here Ex. 7): the pitches it ornaments, $\langle D_4, C\sharp_4, E_4 \rangle$, represent the motive ($\langle -1, +3 \rangle$), and the two D_4 s surrounding it are emphasized contextually, mainly through repetition. Another neighbor, an $F\sharp_4$ on “und” in m. 23, balances the first one. This $F\sharp_4$ ornaments the Category-D form $\langle +4, +1 \rangle$ (represented by $\langle C_4, E_4, F_4 \rangle$), and it is of shorter duration than the notes immediately surrounding it.

The analysis shows that the passage has a definite direction: it increases in remoteness, though not steadily. Up to Form 6, Category-A successions predominate. After Form 6, A forms give way to reorderings, expansions, and octave-complemented expansions, which bring pitch intervals other than 1 and 3 to the fore, particularly intervals 2, 4, and 10. Finally, nonmotivic forms prevail and introduce pitch intervals 6 and 7 in Forms 12 through 17. (The reader should notice that the first variation of Category A to occur is a C form, Form 7; following it is a form that could be derived as C or D. The context here suggests that C forms are closer to the motivic source than D forms.)

Example 9 reveals two problems with the analytic method as developed thus far. First, three motive-forms in the example, Forms 8, 10, and 14, can be derived by more than one kind of variation. Form 8, $\langle +1, -4 \rangle$, for example, is not only a pitch reordering of $\langle +3, +1 \rangle$ or $\langle -1, -3 \rangle$, but also an interval expansion of $\langle +1, -3 \rangle$. The original form giving rise to it is uncertain. (The eight forms in Category D that are also derivable by pitch reordering are marked with asterisks in Table 4.) The choice to identify Forms 8, 10, and 14 as Category C or D forms will take context into account, searching among the A forms that precede them for successions that could give rise to them. Form 2, $\langle +3, +1 \rangle$, can generate Form 8 by pitch reordering, so Form 8 is a member of Category C (this makes Forms 7 through 9 C forms and further strengthens the conjecture that Schoenberg uses context in mm. 20–23 to define C as less remote than D). The interval pairs preceding Form 10 ($\langle -1, +4 \rangle$) include two possible sources—Form 1, $\langle -1, +3 \rangle$, which gives rise to it through expansion, and Form 4, $\langle +1, +3 \rangle$, which begets it through reordering. The source of Form 10 remains nebulous. Lastly, Form 14, identical to Form 8, is also a C form.

The second problem with the analysis in Example 9 is its inability to explain six ordered pitch-interval pairs motivically (Forms 3, 6, 12, 13, 15, and 16). Even though the main

Example 9. Motive variations in the voice part of "Seraphita," Op. 22 No. 1, mm. 20–23

	Motive-form	Category
1.	$\langle -1, +3 \rangle$	A
2.	$\langle +3, +1 \rangle$	A
3.	$\langle +1, +1 \rangle$	not a motive-form
4.	$\langle +1, +3 \rangle$	A
5.	$\langle +3, -1 \rangle$	A
6.	$\langle -1, +2 \rangle$	not a motive-form
7.	$\langle +2, +1 \rangle$	C
8.	$\langle +1, -4 \rangle$	C (or D)
9.	$\langle -2, -1 \rangle$	C
10.	$\langle -1, +4 \rangle$	C (or D)
11.	$\langle +4, -10 \rangle$	D2
12.	$\langle -10, +7 \rangle$	not a motive-form
13.	$\langle +7, +1 \rangle$	not a motive-form
14.	$\langle +1, -4 \rangle$	C (or D)
15.	$\langle -4, -6 \rangle$	not a motive-form
16.	$\langle -6, +4 \rangle$	not a motive-form
17.	$\langle +4, +1 \rangle$	D

concern in analyzing the passage is to demonstrate how and why its motivic variation has a direction, another aspect of developing variation's purpose emphasized by Schoenberg should not be overlooked: that is, variation relates the entire interval structure of a passage or piece to the original motive.

Since [the motive] includes elements, at least, of every subsequent musical figure, one could consider it the 'smallest common multiple.' And since it is included in every subsequent figure, it could be considered the 'greatest common factor'.¹⁹

To account for successions like $\langle -4, -6 \rangle$, two procedures shall be added: overlapping Category-A successions together with their variations to create longer ordered pitch-interval successions, and applying motive variations to overlappings. These procedures will also enable the analyst to explain the four- and six-pitch segments so prevalent in "Seraphita" as whole entities that play roles in motivic successions, rather than breaking them down into three-pitch segments. And they are consistent with the way Schoenberg views longer interval successions in tonal music in *Fundamentals*.

Many examples in Schoenberg's talk illustrate motivic overlapping, including his Example 32, where he calls the overlapping a "chain of motives" (shown in Ex. 10). In this example, the last five motive occurrences and motive-forms overlap in one ordered pitch interval, the kind of overlapping which is the exclusive focus in this article. The larger forms generated by overlapping are never called "motives" themselves in Schoenberg's talk, a situation which diverges from his practice in labelling elements of tonal music. I will call them "motivic overlappings," "overlap-generated forms," or "larger forms."

We have seen that in Schoenberg's view of tonal music, the smallest motivic particles combine with themselves to form larger motives, which in turn combine to form phrases,

¹⁹*Fundamentals*, 8.

Example 10. Example 32 in "Analysis of Op. 22"

From the final section and its orchestral conclusion, I would like first to show you that the initial motif returns in the voice in the form of a chain of motifs.



No. 32a (Piano)

The motif is included six times:



No. 32b (Piano)

whose endings are marked by conventional means. His concept of the relationships between atonal motive, motivic overlapping, and phrase does not always parallel this. His Examples 5 through 11a illustrate three kinds of atonal phrase (shown in Ex. 4): overlappings of longer successions which themselves are created by overlapping motive-forms, in the manner of tonal phrases (his Ex. 5 overlaps two five-interval successions of this kind); single motive-forms (his Examples 8 and 9); and overlappings of motive-forms (his Example 10). Phrase endings are marked in these examples by melodic descent and change of direction, rests, and longer note values.

Thus the relationship between phrase and motive is more flexible in atonal music than in tonal music, according to Schoenberg. The phrase ending becomes the only criterion for identifying phrases in analysis, not size relative to motive. At the same time, any of the three units mentioned above—single motive, motivic overlapping, or overlapping of overlappings—whether they are marked as phrases or not, can function motivically. The two larger units can also undergo variation to produce new larger forms, in the same way

Example 11a. Example 16 in "Analysis" prior to pitch reordering

Two musical staves in bass clef. The first staff shows a sequence of notes with intervals of +3, +1, +3, labeled 'A'. The second staff shows a similar sequence, also labeled 'A'.

Example 11b. Schoenberg's final form

A musical staff in bass clef showing a more complex variation of the overlapping form.

No. 16a (Vlc. m. 16) No. 16b (Vlc. m. 17)

that a tonal phrase and its features can undergo variation.

A number of Schoenberg's examples in the radio talk feature overlappings that are transformed by the three motive-variation kinds. For instance, his Example 16 shows two phrases that come about by reordering the pitches of three-interval overlappings of Category-A forms. Examples 11a and 11b in the present article depict the process. Although they are not so clearly illustrated in Schoenberg's lecture examples, expansions and octave complementations of overlappings also pervade Op. 22. (Because octave complementation of a motivic overlapping's intervals produces forms identical to overlappings including B, C2, or D2 forms, octave complementation of a larger form shall be considered only when it appears in tandem with other variations of that form.) To these variation kinds a fourth kind shall be added pertaining only to larger forms—interval compounding by multiples of twelve semitones, the products of which are significant in "Seraphita."

The remoteness scale for varied overlappings parallels the ranking devised earlier for motive variations. The number of aspects of an ordered pitch-interval succession that a variation changes is the same regardless of the succession's length.

Example 12. Motivic overlappings and variations of overlappings in mm. 20–23 of the voice part of "Seraphita," with table of set classes

Musical notation for the voice part of "Seraphita" in mm. 20–23. The notation includes numbered overlappings (1-15) and their corresponding set classes. The lyrics are: mir wind ver-schla - gen auf des Le-bens wil - der See. sei mei - ne Fahrt auch voll von fin - ster Sturm und Weh:

Thus overlappings varied in any way are more remote than unvaried ones, interval expansions of overlappings are equivalently remote to pitch reorderings of them (although one or the other variation could be defined contextually as more remote), and combinations of variation kinds (reordering plus octave complementation, for example) have a more remote result than single variations.

The voice part in mm. 20–23 of "Seraphita" will now be reconsidered, tracing three-interval motivic overlappings and their variations. This analysis is provided in Example 12. It should be noted that each of the forms in the example can be created in a number of ways more complicated than the derivation listed. For example, Form 5, $\langle +3, -1, +2 \rangle$, could be attained by many derivations more remote than the one listed; one possibility is overlapping C and D forms $\langle -4, +2, +1 \rangle$, then reordering. But the derivation chosen for Form 5 is one of those closest to the motivic source, and choices for the other forms were made likewise.

Example 12 [Continued].

Three-interval form	Kind of overlapping and subsequent variations	Set class
1. $\langle -1, +3, +1 \rangle$	overlapping of A forms	4-3
2. $\langle +3, +1, +1 \rangle$	overlapping of C and D forms $\langle -4, +3, +2 \rangle$ followed by pitch reordering	4-4
3. $\langle +1, +1, +3 \rangle$	overlapping of C and D forms $\langle +4, -3, -2 \rangle$ followed by pitch reordering	4-4
4. $\langle +1, +3, -1 \rangle$	overlapping of A forms	4-3
5. $\langle +3, -1, +2 \rangle$	overlapping of A and C forms $\langle -1, -3, +2 \rangle$ followed by pitch reordering	4-2
6. $\langle -1, +2, +1 \rangle$	overlapping of A forms $\langle -1, +3, -1 \rangle$ followed by pitch reordering	4-1
7. $\langle +2, +1, -4 \rangle$	overlapping of C forms	4-3
8. $\langle -2, -1, +4 \rangle$	overlapping of C and C (or D) forms	4-3
9. $\langle -1, +4, -10 \rangle$	overlapping of C (or D) and D2 forms	4-Z15
10. $\langle +4, -10, +7 \rangle$	overlapping of C (or D) and D2 forms $\langle -1, +4, -10 \rangle$ followed by pitch reordering	4-Z15
11. $\langle -10, +7, +1 \rangle$	overlapping of C (or D) and D2 forms $\langle +3, -2, -8 \rangle$ followed by pitch reordering	4-11
12. $\langle +7, +1, -4 \rangle$	overlapping of A and D2 forms $\langle +3, +1, -8 \rangle$ followed by pitch reordering	4-19
13. $\langle +1, -4, -6 \rangle$	overlapping of B and C forms $\langle +9, +1, -4 \rangle$ followed by pitch reordering	4-12
14. $\langle -4, -6, +4 \rangle$	overlapping of D forms $\langle +4, +2, +4 \rangle$ followed by pitch reordering	4-25
15. $\langle -6, +4, +1 \rangle$	overlapping of C and D forms $\langle -2, -3, +4 \rangle$ followed by interval expansion to $\langle -2, -4, +5 \rangle$ and pitch reordering	4-5

Segmentation into three-interval forms expresses the overall direction of mm. 20–23 as clearly as the motivic analysis of Example 9. Here, the drive toward more remote larger forms can be better characterized if split into four stages: in Forms 1 through 6, overlappings of A forms have variations of overlappings interspersed with them; Forms 7 through 9 are overlappings of C, D, and D2 forms; Forms 10 through 14 contain reordered overlappings exclusively; and Form 15 comes about through multiple variations of an overlap-generated form. Notice that the first appearance of interval expansion as a larger-form variation is at Form 15, while pitch reorderings of overlappings are prevalent from the beginning of the excerpt. As he does with motive variations, Schoenberg seems to be defining expansion as a more remote variation than reordering contextually.

At this point we return to the crucial question posed at the beginning of the analyses of mm. 20–23: How does this passage exemplify atonal developing variation? Examples 12 as well as 9 have demonstrated that it increases in remoteness, and hence its variation has a direction. But more than that, this remoteness increase illustrates the two traits typical of tonal developing variation: it fulfills the implications of its first forms, and it delimits and characterizes a segment of the musical form. First, a brief example of how Schoenberg fulfills implications. Formation of the total interval-class content of set-class 4-3 (0134) by different overlappings of A forms in Forms 1 and 4 suggests that overlappings of more remote motive-forms are contained within the same total interval-class content. Forms 7 and 8 corroborate this suggestion: they bring to the fore as consecutive intervals

ordered pitch intervals that existed in Forms 1 and 4 only implicitly, in the sense that they were not consecutive.

Measures 20–23 also delimit and characterize a segment of the song. In “Seraphita,” variation is not motivated so much by the need to fulfill a segment’s function within the overall form as by the need to represent the content of the corresponding section of text and its function within the whole poem. The original English version of “Seraphita,” by Ernest Dowson, and the German translation by Stefan George that Schoenberg set appear below.

Come not before me now, O visionary face!
 Me tempest-tost, and borne along life’s passionate sea;
 Troublous and dark and stormy though my passage be;
 Not here and now may we commingle or embrace,
 Lest the loud anguish of the waters should efface
 The bright illumination of thy memory,
 Which dominates the night: rest, far away from me,
 In the serenity of thine abiding-place!

But when the storm is highest, and the thunders blare,
 And sea and sky are riven, O moon of all my night!
 Stoop down but once in pity of my great despair,
 And let thine hand, though over late to help, alight
 But once upon my pale eyes and my drowning hair,
 Before the great waves conquer in the last vain fight.

Erscheine jetzt nicht, traumverlorenes Angesicht,
 Mir windverschlagen auf des Lebens wilder See—
 Sei meine Fahrt auch voll von finster Sturm und Weh:
 Hier—jetzt—vereinen oder küssen wir uns nicht!

Sonst löscht die laute Angst der Wasser vor der Zeit
 Das helle Leuchten, deines Angedenkens Stern
 Der durch die Nächte herrscht—bleib von mir fern
 In deines Ruheortes Heiterkeit!

Doch wenn der Sturm am höchsten geht und kracht
 Zerrissen See und Himmel, Mond in meiner Nacht!
 Dann neige einmal dem Verzweifelten dich dar,

Lass deine Hand (wenn auch zu spät nun) hilfbereit
 Noch gleiten auf mein fahles Aug und sinkend Haar,
 Eh grosse Woge siegt im letzten leeren Streit!²⁰

George’s translation splits Dowson’s poem into four stanzas of four, four, three, and three lines. Within the first stanza, the two inner lines have a function different from those of lines 1 and 4: lines 2 and 3 describe the poet’s circumstances, while the outer lines are exhortations to the “visionary face.” The rhyme scheme, *a b b a*, also suggests a division into outer and inner lines. Schoenberg reinforces this division by beginning the increase in remoteness of three-interval successions near the onset of line 2 and ending it at the close of line 3. Example 13 shows that the last two forms in line 1, reordered and expanded overlappings, are considerably more remote than the initial form of line 2, Form 1 of Example 12. Form 1 may be heard as the beginning of a process (although Forms 2 and 3 obscure the process by jumping back to the remoteness level of line 1’s ending) because of this plunge in remoteness (also because the process’s outline is clearer after Form 6). And the initial forms of line 4 signal the end of the same process (see Ex. 14). They are reordered overlappings of A and D forms, reflecting a drop in remoteness after the multiple larger-form variation at the end of line 3.

In addition to delimiting this segment of the text and form through developing variation, Schoenberg uses variation to express its content. He portrays the poet’s despair by progressively disorganizing the original overlappings. It is as if Forms 1 and 4 were undergoing a “troublous and dark and stormy” passage of their own. In the radio lecture, Schoenberg hints at the idea of allowing motive-forms and over-

²⁰Ernest Dowson, *The Poetry of Ernest Dowson*, 3d ed., ed. Desmond Flower (Rutherford, NJ: Fairleigh Dickinson University Press, 1970), 86; Stefan George, *Gesamtausgabe*, vol. 15: *Zeitgenössische Dichter, Übertragungen, Erster Teil* (Dusseldorf and Munich: Helmut Küpper, 1969), 48.

Example 13. Motive-forms, motivic overlappings, and variations of overlappings in mm. 18–20 of the voice part of “Seraphita,” with table of set classes

18

Er-scheine jetzt nicht, traum-ver-lor-nes An-ge-sicht,

Motive-form or overlapping	Category or kind of overlapping and subsequent variations	Set class
1. $\langle +1, +3 \rangle$	Category A	3–3
2. $\langle +1, +3, -2 \rangle$	Overlapping of A and C (or D) forms	4–2
3. $\langle +3, -2, +6 \rangle$	Overlapping of C and D forms $\langle +1, +2, +4 \rangle$ with reordering	4–Z29
4. $\langle -1, -1, +3 \rangle$	Overlapping of A forms $\langle -1, +3, -1 \rangle$ with reordering	4–1
5. $\langle -1, +3, -5 \rangle$	Overlapping of A forms $\langle +3, -1, +3 \rangle$ with reordering	4–10
6. $\langle +3, -5, -1 \rangle$	Overlapping of C and D forms $\langle +1, +2, +3 \rangle$ with reordering	4–13
7. $\langle -5, -1, -3 \rangle$	Overlapping of A and D forms $\langle -4, -1, -3 \rangle$ with interval expansion	4–18
8. $\langle -1, -3 \rangle$	Category A	3–3

lappings to stand for characters, so that developing variation represents the action:

My music, however, took representational words into account in the same way as abstract ones: it furthered the immediate, vivid rendering of the whole and of its parts, according to the measure of their meaning within the whole. Now, if a performer speaks of a passionate sea in a different tone of voice than he might use for a calm sea, my music does nothing else than to provide him with the opportunity to do so, and to support him. The music will not be as agitated as the sea, but it will be *differently* so, as, indeed, the performer will be. Even a painting does not reproduce its whole subject matter; it merely states a motionless condition. Likewise, a word describes an object and its state; a film reproduces it without color, and a color film would reproduce it without organic life. Only music, however, can bestow this last gift, and that is why music may impose a limit on its capacity to imitate—by *placing* the object and its being *before the mind's* eye, through performance.²¹

Before concluding, we shall examine how Schoenberg's variations of motive and overlappings in the voice part mark off the outside lines of Stanza I, and how these transformations represent the action, circumstances, and emotions in the text. We shall also see how variation in a small segment of the orchestral accompaniment accomplishes the same ends.

Example 13 presents the overlappings and motive-forms of line 1. We have already considered how developing variation marks its end with a plunge in remoteness. Within the first line, variation illustrates the poet's exhortation by allowing the motivic source to stand for the “visionary face.” “Erscheine” is set by a Category-A form, as is “Ange-sicht.” In his setting of “Erscheine jetzt nicht,” Schoenberg exploits the word order of George's translation, which places “nicht” at the end of the initial phrase. “Erscheine jetzt” gets an overlapping of A and C (or D) forms, but with “nicht” Schoenberg introduces a much more remote tetrachord, a reordered

²¹“Analysis,” 32. Italics are Schoenberg's.

Example 14. Motivic overlappings and variations of overlappings in mm. 24–26 of the voice part of “Seraphita,” with table of set classes

Three-interval form	Kind of overlapping and subsequent variations	Set class
1. $\langle +4, -6, +5 \rangle$	Overlapping of A and D forms $\langle +2, +3, +1 \rangle$ with reordering	4-Z15
2. $\langle -6, +5, -4 \rangle$	Overlapping of D forms $\langle +1, +4, +1 \rangle$ with reordering	4-8
3. $\langle +5, -4, +3 \rangle$	Overlapping of A forms $\langle +1, +3, +1 \rangle$ with reordering	4-7
4. $\langle -4, +3, +2 \rangle$	Overlapping of C and D forms	4-4
5. $\langle +3, +2, +5 \rangle$	Overlapping of D forms $\langle +3, +2, +4 \rangle$ with interval expansion	4-23
6. $\langle +2, +5, -11 \rangle$	Overlapping of D and D2 forms $\langle -11, +4, +2 \rangle$ with reordering	4-16
7. $\langle +5, -11, -4 \rangle$	Overlapping of C2 and D2 forms $\langle -11, -4, +10 \rangle$ with reordering	4-Z15
8. $\langle -11, -4, +10 \rangle$	Overlapping of C2 and D2 forms	4-Z15
9. $\langle -4, +10, -5 \rangle$	Overlapping of D and D2 forms $\langle -1, -4, +10 \rangle$ with reordering	4-16

overlapping of C and D forms. Just as George’s “nicht” suddenly alerts the reader to the poet’s need to keep his beloved at a safe distance, Schoenberg’s B4 abruptly drives motivic overlappings far from the motivic source.

Section 3 of the first stanza, the setting of line 4, is analyzed in Example 14. Like Sections 1 and 2, the third section is characterized by an overall increase in remoteness, progressing from a reordered overlapping of A and D forms to a reordered overlapping of D and D2 forms. Unlike its predecessors, however, the increase in Section 3 is interrupted twice by successions closer to the motivic source—the overlap of Forms 3 and 4 and Form 8. This seeming anomaly serves as a text-painting device: the overlap of Forms 3 and 4 begins precisely at the onset of “vereinen,” and the E5 that begins Form 8 sets the first syllable of “küssen.” Both verbs refer to the poet’s desire to unite himself with his beloved, in the midst of circumstances that make such a union impossible. Forms 3, 4, and 8 portray futile desire in that they have no effect on the passage’s ultimate course.

Developing variation in the accompaniment performs the same two roles as variation in the voice part. It reinforces section boundaries by abrupt changes in remoteness, and it assists variation in the solo in its text-painting capacity. To illustrate this cooperation, the accompaniment to line 4, mm. 23–26, has been analyzed in Example 15. The analysis focuses on two series of three-interval overlappings: a series of horizontal successions in the violins, and a series of prominent verticals formed by the violins and other parts. These verticals are presented as ordered pitch-interval successions in which the order of intervals is reckoned registrally from bottom to top.

In the violin *Hauptstimme* of mm. 23–26, three-interval forms start relatively close to the motivic source. The varied overlappings grow in remoteness until Form A5, a multiply varied overlapping that begins together with the word “vereinen,” then decrease to Forms A9 and A10, which are unvaried overlappings. At Form A11, the first three-interval form appearing entirely after the voice’s attack of “nicht,”

we hear a drastic increase in remoteness. Form A11 is an overlapping of C2 and D forms followed by three variations. Here Schoenberg has found a more obvious way to portray “hier jetzt vereinen oder küssen wir uns nicht!” than the portrayal of this passage in the voice. After “vereinen,” varied and unvaried overlappings approach the motivic source, which Schoenberg has associated with the “visionary face” from the beginning. But with the conclusion at the end of line 4, that union is impossible; the varied overlappings fly off into high remoteness levels.

The prominent vertical overlappings in mm. 23–26 follow the same general plan as the *Hauptstimme*, although in a less dramatic fashion. Remoteness decreases from Form B1 to Form B6, then jumps back at Form B7 to the initial level. Form B7 anticipates “nicht” by three-quarters of a beat, but is the only vertical in the adverb’s immediate vicinity.

* * *

The view of “Seraphita” presented here, in which variation in voice and accompaniment cooperate to delimit sections and portray the text, conflicts with Bryan Simms’s conclusions in his analysis of the song, which uses pitch-class set terminology.²² This disagreement shall be examined, because a significant question comes to light as a result: how does the motivic structure described here affect, and how is it affected by, networks of relationships involving the set classes of forms?

Simms points out that Schoenberg had already completed his sketch of the melody of “Seraphita” when he began putting the accompaniment in its final form, and observes (correctly) that the set classes most prominent in the accompaniment, such as 4–19, 5–21, 6–Z19, and 6–20, are not prominent in the voice part. He concludes that the voice exhibits no unified harmonic scheme, and that Schoenberg

²²Bryan Simms, “Line and Harmony in the Sketches of Schoenberg’s ‘Seraphita,’ Op. 22, No. 1,” *Journal of Music Theory* 26 (1982): 291–312.

developed the harmonic scheme of the accompaniment separately. The present study has shown that interval successions in both voice and accompaniment result from variation of the same motivic source, Category A, and that the same two ends motivate the specific variations used in voice and accompaniment, delimiting and characterizing sections of the form. Therefore, the voice and accompaniment together exhibit a unified motivic scheme. But how does this relate to the harmonic scheme in the accompaniment? Is it even appropriate to speak of two means of organization, harmonic and motivic, in Schoenberg’s atonal music?

The opening chapters of Schoenberg’s *Theory of Harmony* refer repeatedly to the interrelated domains of harmony and motive in tonal music.

The balanced relation of motives to harmony, rhythmic elaboration, in short, what really pertains to composition, if it indeed can be explained at all, does not belong in a harmony course.²³

The present study argues that these same domains, motivic and harmonic structure, co-exist in atonal music. What makes atonal music different is that the elements of harmony—set classes—are not defined principally in the vertical dimension, and the elements of motivic structure are not defined principally in the horizontal dimension. A set class may be expressed horizontally without being thought of as an arpeggiation, and an atonal motive variation may be expressed vertically without being thought of as a verticalized melody.

The harmonic structure of “Seraphita” shall not be described exhaustively here.²⁴ The preceding observations on how motivic and harmonic structures interface will point out first one way in which the motivic structure of “Seraphita”

²³Arnold Schoenberg, *Theory of Harmony*, trans. Roy E. Carter (Berkeley and Los Angeles: University of California Press, 1978), 16; see also 33–34.

²⁴Examples of analyses describing atonal harmonic structures can be found in Forte, *Structure of Atonal Music*, especially pp. 113–77.

Example 15. Motivic overlappings and variations of overlappings in the accompaniment of "Seraphita," mm. 23–26, with table of set classes

Three-interval form	Kind of overlapping and subsequent variations	Set-class
A1. $\langle +2, +7, -10 \rangle$	Overlapping of A and B forms $\langle -9, -1, +3 \rangle$ with reordering	4-10
A2. $\langle +7, -10, +5 \rangle$	Overlapping of D and D2 forms $\langle -2, -3, +10 \rangle$ with reordering	4-23
A3. $\langle -10, +5, -4 \rangle$	Overlapping of C2 and D forms $\langle -10, +1, +4 \rangle$ with reordering	4-14
A4. $\langle -4, -1, +18 \rangle$	Overlapping of D forms $\langle -1, -4, -1 \rangle$ with compounding and reordering	4-8
A5. $\langle +6, +1, -11 \rangle$	Overlapping of A and C (or D) forms $\langle -4, +1, -3 \rangle$ with reordering, expansion, reordering, and octave complementation	4-5
A6. $\langle +1, -11, +13 \rangle$	Overlapping of A forms $\langle -1, +3, -1 \rangle$ with compounding and reordering	4-1
A7. $\langle -11, +13, -11 \rangle$	Overlapping of B forms $\langle +11, -9, +11 \rangle$ with reordering	4-1
A8. $\langle +13, -11, +8 \rangle$	Overlapping of B and C2 forms $\langle +11, -3, -10 \rangle$ with reordering	4-2
A9. $\langle -11, +8, +10 \rangle$	Overlapping of D2 forms	4-Z15
A10. $\langle +8, +10, -1 \rangle$	Overlapping of D2 and C2 forms	4-Z29
A11. $\langle -1, -5, -5 \rangle$	Overlapping of C2 and D forms $\langle -11, +2, +4 \rangle$ with reordering, expansion, and reordering	4-6
A12. $\langle -5, -5, +1 \rangle$	Overlapping of C2 and D forms $\langle -10, +1, +4 \rangle$ with reordering	4-14
A13. $\langle -5, +1, -4 \rangle$	Overlapping of C (or D) and D forms $\langle -4, +1, -4 \rangle$ with expansion	4-19
A14. $\langle +1, -4, -4 \rangle$	Overlapping of A and D2 forms $\langle +3, +1, -8 \rangle$ with reordering	4-19
A15. $\langle -4, -4, -6 \rangle$	Overlapping of A and D forms $\langle +3, +1, +4 \rangle$ with reordering, expansion, and octave complementation	4-24

Example 15 [Continued].

Three-interval form	Kind of overlapping and subsequent variations	Set class
A16. $\langle -4, -6, -4 \rangle$	Overlapping of D2 forms $\langle +4, -10, -4 \rangle$ with reordering	4-21
A17. $\langle -6, -4, -4 \rangle$	Overlapping of A and D forms $\langle +4, +1, +3 \rangle$ with reordering, expansion, and octave complementation	4-24
A18. $\langle -4, -4, +1 \rangle$	Overlapping of A and D2 forms $\langle -8, +1, +3 \rangle$ with reordering	4-19
A19. $\langle -4, +1, +2 \rangle$	Overlapping of C forms	4-3
B1. $\langle +3, +3, +7 \rangle$	Overlapping of C and D forms $\langle +1, +2, +3 \rangle$ with reordering and octave complementation	4-13
B2. $\langle +6, +5, +5 \rangle$	Overlapping of D forms $\langle -2, -4, -1 \rangle$ with reordering and octave complementation	4-16
B3. $\langle +6, +7, +9 \rangle$	Overlapping of D and C forms $\langle +4, +2, +1 \rangle$ with reordering and octave complementation	4-Z29
B4. $\langle +4, +7, +9 \rangle$	Overlapping of B and D2 forms $\langle -9, -11, +4 \rangle$ with reordering	4-19
B5. $\langle +3, +5, +3 \rangle$	Overlapping of B forms $\langle +3, -11, +3 \rangle$ with reordering	4-17
B6. $\langle +9, +8, +3 \rangle$	Overlapping of B forms $\langle +3, -11, -9 \rangle$ with reordering	4-17
B7. $\langle +5, +6, +10 \rangle$	Overlapping of C and D forms $\langle +4, +2, +1 \rangle$ with reordering and octave complementation	4-Z29
B8. $\langle +11, +9, +8 \rangle$	Overlapping of A and D forms $\langle +3, +1, +4 \rangle$ with reordering and octave complementation	4-19
B9. $\langle +10, +11, +4 \rangle$	Overlapping of A forms $\langle +1, +3, -1 \rangle$ with reordering and octave complementation	4-3

influences Schoenberg's choice of set classes, and one way in which the concept of set class influences developing variation.

Many of the set classes Simms identifies as significant harmonies in "Seraphita's" accompaniment (because of frequency of appearance) contain overlappings of Category-A forms. Set class 5-21 (01458) can be generated as $\langle +1, +3, +1, +3 \rangle$, 6-Z19 (013478) as $\langle +1, -3, -1, -3, -1 \rangle$, and 6-20 (014589) as either $\langle +3, +1, +3, +1, +3 \rangle$ or $\langle +1, +3, +1, +3, +1 \rangle$. Set class 4-19 (0148), Simms's "basic tetra-chord" for the piece, arises by overlapping forms from Categories A and D: $\langle +3, +1, +4 \rangle$. Occasionally, these set classes appear in "Seraphita" in their original forms as motivic overlappings; two salient examples can be found in m. 46, where 4-19 appears as $\langle -4, -1, -3 \rangle$ and $\langle -3, -1, -4 \rangle$

in the trumpet and third trombone. Not only does motivic structure in the voice and accompaniment manifest a unified scheme, but this unified motivic scheme at least partially explains the choice of harmonic elements in both. Some of the most significant set classes in "Seraphita" occur when motivic structure calls for overlappings close to the motivic source.

The concept of set class often influences the course of developing variation, as was illustrated by Example 12. In the remoteness increase observed there, overlappings of more remote motive-forms that preserve the set class of the initial form come near the beginning, while varied overlappings that belong to different set classes predominate in the middle and at the end.

Table 7a. Comparison of remoteness with the results of three set-class similarity measures

Three-interval form	Kind of overlapping and subsequent variations	Set class
1. $\langle -1, +3, +1 \rangle$	Overlapping of A forms	4-3
7. $\langle +2, +1, -4 \rangle$	Overlapping of C forms	4-3
9. $\langle -1, +4, -10 \rangle$	Overlapping of C (or D) and D2 forms	4-Z15
12. $\langle +7, +1, -4 \rangle$	Overlapping of A and D2 forms $\langle +3, +1, -8 \rangle$ followed by pitch reordering	4-19
14. $\langle -4, -6, +4 \rangle$	Overlapping of D forms $\langle +4, +2, +4 \rangle$ followed by pitch reordering	4-25
15. $\langle -6, +4, +1 \rangle$	Overlapping of C and D forms $\langle -2, -3, +4 \rangle$ followed by interval expansion to $\langle -2, -4, +5 \rangle$ and pitch reordering	4-5

Table 7b. Measures of similarity between each form's set class and Form 1's set class

Interval-class vector	Trichord-class vector	SIM(A,B) (higher = more dissimilar)	TMEMB(A,B) (higher = more similar)	IcVSIM(A,B) (higher = more dissimilar)
(1.) [212100]	[022000000000]			
(7.) [212100]	[022000000000]	0	22	0.00
(9.) [111111]	[001010110000]	4	13	0.82
(12.) [101310]	[001100000011]	6	13	1.15
(14.) [020202]	[000000040000]	8	6	1.53
(15.) [210111]	[100110010000]	4	8	1.00

The comparison of motivic and harmonic structures in "Seraphita" has concentrated thus far on correspondences between their elements, while saying nothing about interaction between motivic processes and harmonic relations. Without presenting a complete set-complex analysis, this interaction cannot be described completely. What may be done

here is to inquire whether the simplest kind of correlation exists, whether increases and decreases in remoteness parallel increases and decreases in set-class similarity. Three measures for set-class similarity will be used: Robert Morris's dissimilarity index based on interval-vector comparison SIM(A,B), John Rahn's similarity index based on subset con-

tent TMEMB(A,B), and Eric Isaacson's dissimilarity index IcVSIM(A,B), which uses standard deviation to measure the degree of variance in the differences between corresponding entries of the interval vectors.²⁵

Table 7 presents a list of three-interval successions that outline the remoteness increase in mm. 20–23 of “Seraphita.” Using remoteness as a similarity measure, similarity to the initial form decreases gradually from top to bottom of the table (see Table 7a). Slightly different results are obtained when set-class similarity measures are used (see Table 7b). Since Forms 1 and 7 belong to the same set class, set-class similarity calls them maximally similar. Another measure is needed to recognize the different ordered pitch-interval successions. Furthermore, SIM, TMEMB, and IcVSIM reverse the order of dissimilarity for Forms 14 and 15. Morris's, Rahn's, and Isaacson's indices accurately measure differences in total interval-class content: the dual interval expansions that create Form 14's progenitor, $\langle +4, +2, +4 \rangle$, also excise all the odd interval classes, which indeed makes the total interval-class content of Form 14 more foreign to Form 1 than that of Form 15. But Form 15 is more remote than Form 14 in another sense. In terms of the three variation kinds defined in this article, at least two variations on a motivic overlapping are needed to generate Form 15, while Form 14 can be attained through one larger-form variation. Adopting this order of dissimilarity renders the final three-interval succession of mm. 20–23 the most dissimilar, making it possible to speak of a gradual remoteness increase.

²⁵Robert Morris, “A Similarity Index for Pitch-Class Sets,” *Perspectives of New Music* 18 (1979–80): 445–60; John Rahn, “Relating Sets,” *ibid.*, 483–98; and Eric J. Isaacson, “Similarity of Interval-Class Content between Pitch-Class Sets: The IcVSIM Relation,” *Journal of Music Theory* 34 (1990): 1–28.

Indices suggested in previous publications are certainly valuable as measures of similarity between set classes, a similarity that contributes to the harmonic structure of atonal music. But, as the present study has attempted to show, another kind of similarity measure between ordered pitch-interval successions is necessary to uncover motivic structures in “Seraphita” that justify the song's interval configurations as projections of the text and musical form. It is at least possible that the rest of Schoenberg's atonal music has similar motivic structures, starting from different motives and making use of different variations, so that adaptations of the concepts of remoteness, unvaried motive, motivic feature, overlapping, and variation presented in this article may be useful in the analysis of that music. (Some of these concepts may also permit us to describe developing variation in tonal pieces more completely.) As we discover other motivic structures in Schoenberg's atonal music, it will become increasingly clear that much of what once seemed revolutionary and presently seems recalcitrant in this music stems from an analogue to a traditional process—developing variation.

ABSTRACT

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.” This article shows how developing variation generates an atonal piece, highlighting ways in which atonal and tonal variation are similar. The article systematically extends remarks that Schoenberg made in a radio lecture on the *Four Orchestral Songs*, Op. 22. An analysis of the first stanza of “Seraphita” Op. 22 No. 1 shows that two considerations motivate the chains of overlap-generated successions that gradually increase and decrease in remoteness from the motivic source: Schoenberg's obligations to delimit sections within the form and to characterize those sections in accordance with the text.