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Linear Analysis of Selected Posttonal Works of Arnold Schoenberg: Toward an Application of Schenkerian Concepts to Music of the Posttonal Era (and) String Quartet, No. 2 (Original Composition)

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LINEAR ANALYSIS OF SELECTED POSTTONAL WORKS OF ARNOLD SCHOENBERG: TOWARD AN APPLICATION OF SCHENKERIAN CONCEPTS TO MUSIC OF THE POSTTONAL ERA

by

Edward M. Smaldone

A dissertation submitted to the Graduate Faculty in Music in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.

1986

This manuscript has been read and accepted for the Graduate Faculty in Music in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

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ABSTRACT

LINEAR ANALYSIS OF SELECTED POSTTONAL WORKS OF ARNOLD SCHOENBERG: TOWARD AN APPLICATION OF SCHENKERIAN CONCEPTS TO MUSIC OF THE POSTTONAL ERA

by

Edward M. Smaldone

Advisor: Henry Weinberg.

The analysis of posttonal music is approached through a method (which originated with Henry Weinberg) utilizing Schenker's approach to tonal music as a conceptual model. This method differs from all other methods of analysis in that voice leading is combined with a unique approach to nontonal harmony. The presentation of the analytical method is given a historical perspective through the analysis of "Jimbo's Lullaby," by Debussy. There follows detailed analyses of *Op. 15* no. 1 (*The Book of the Hanging Gardens*) and *Six Little Piano Pieces*, Op. 19 by Arnold Schoenberg. Part II of the dissertation is an original composition, *String Quartet*, No. 2.

PREFACE AND ACKNOWLEDGEMENTS

The following study is largely an explanation and testing of the theories of Henry Weinberg. Over the past twenty years Weinberg has been involved in the analysis of music of the late tonal and posttonal eras, especially the music of Arnold Schoenberg.[a] Weinberg has adapted Schenker's approach to tonal music as a conceptual model. As such, a posttonal musical texture is interpreted through a method of analysis which appreciates the multi-leveled dimension in music as well as aspects of voice leading, prolongation, the posttonal equivalent of harmonic and nonharmonic tones, and the intuitively perceived process of beginning, middle, and end without reference to which musical art would sever its ties to time as a meaningful factor.

At the center of this method is the cyclically derived collection (a collection generated by a series of fourths or whole-tones) as a structure

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[a]The use of the term "posttonal" rather than "atonal" is consistent with Schoenberg's view, expressed in the *Theory of Harmony* (p. 432) and repeated in *Style and Idea*, that music cannot be truly "atonal," i.e., not having to do with tones. The choice of "posttonal" is intended to provide a neutral term to indicate music which does not utilize the triad as part of its fundamental structure. It essentially denotes music written after the era of "common practice tonality."

which provides harmonic unity. Weinberg first explored the significance of such collections and the ideas of *Stüfen* (scale-steps), transference, and *Schichten* (levels), as they might be applied to posttonal and twelve-tone music, in his dissertation.[b]

Since 1966, Weinberg has continued to explore these aspects in the analysis of numerous works of the posttonal literature, both of Schoenberg and other composers. I was first introduced to these ideas in 1978, as a graduate student at Queens College, CUNY, in a class given by Weinberg. Subsequent seminars and private discussions led to this essay. From Weinberg I have adapted my general analytic method, and I present here for the first time, his analysis of the first song from Schoenberg's *The Book of the Hanging Gardens*, Op.15, as the main material of Chapter 3. I have contributed a means of graphically representing the findings of that analysis. All other analyses contained herein are also mine.

The following study begins with a brief exploration of how fourth and whole-tone collections operate as harmonic units in some of the so-called tonal music of Debussy, Bart k and Schoenberg. Weinberg has developed a rigorous terminology and method with regard to the posttonal music of Schoenberg, which is explained in detail in the second and third chapters. Part of the explanation is in through the presentation of an analysis of the first song from Schoenberg's *The Book of the Hanging Gardens*. The fourth chapter presents an analysis of Schoenberg's *Six Little Piano Pieces*, Op. 19.

[b]Henry Weinberg, "A Method of Transferring the Pitch Organization of a Twelve-Tone Set Through All Layers of a Composition. A Method of Transforming Rhythmic Content Through Operations Analogous to Those of the Pitch Domain." Ph. D. diss., Princeton Univ. (Ann Arbor: University Microfilms, 1966).

The most important aspects of Weinberg's method of analysis have to do with the application of the concept of multiple levels of structure in posttonal music, and the notion that certain pitches, or collections, "resolve" to others (the two are obviously related ideas). In order to address this issue most fully, the analyses focus on complete works or movements. In this way the analyses can demonstrate how such a multi-layered interpretation bears on our perception of music.

I wish to thank Professor Weinberg for his considerable encouragement and the very generous expenditure of his time in the development of this essay, and especially for permission to present his analysis of Op. 15, No.1, published here for the first time.

Professor Joel Lester was extremely helpful in sharpening the focus and reshaping the format from first draft to final version. Without his careful reading and thoughtful comments the paper would not have taken its final form. Professor Sherman Van Solkema also provided very helpful suggestions when the essay was in its final stages. Lastly I wish to thank my wife, Karen, who has endured more than anyone else. Without her encouragement and patience this project might never have seen completion.

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CHAPTER ONE

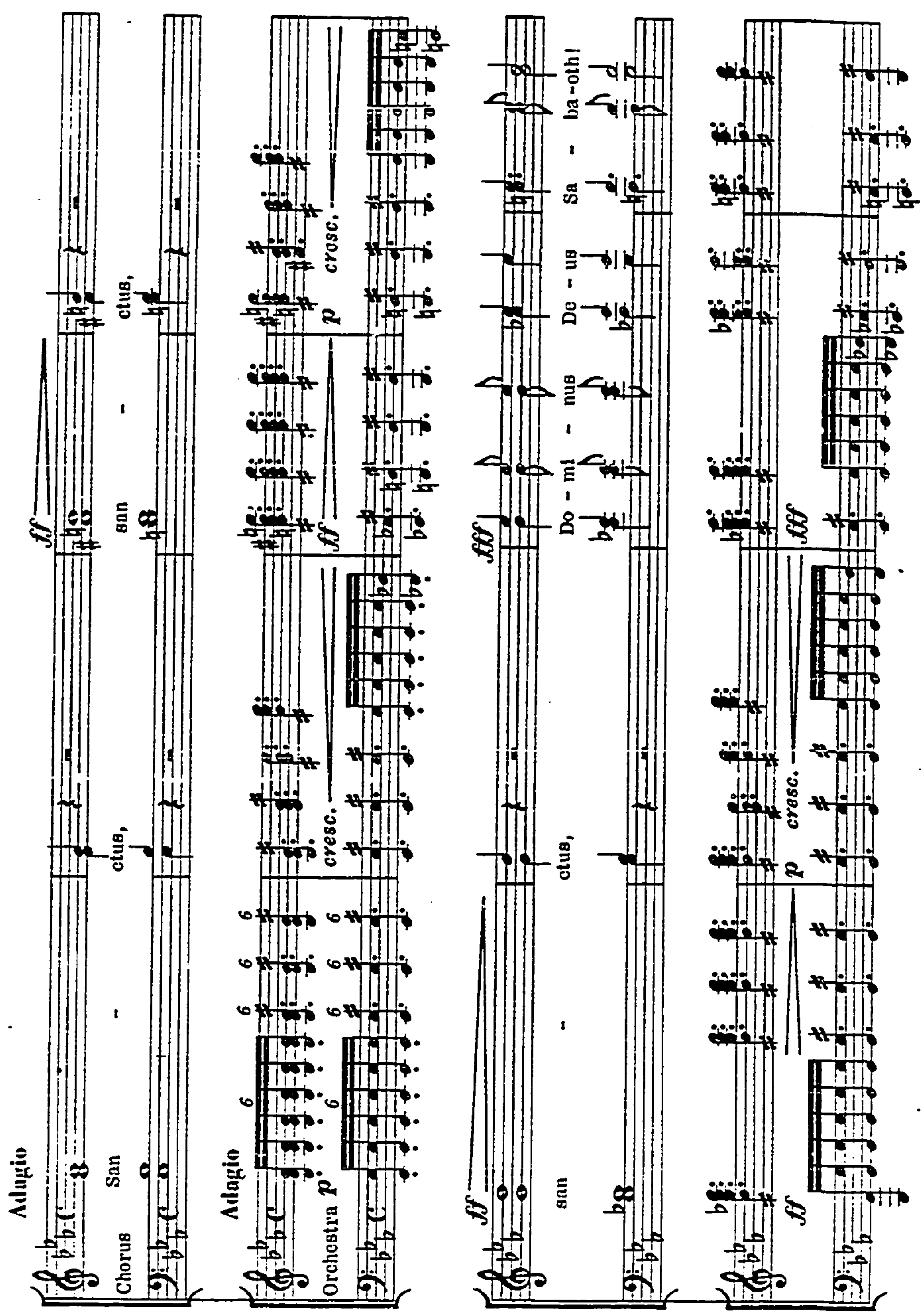
CYCLICAL STRUCTURES IN TONAL MUSIC

The primary harmonic force in common practice tonality can be characterized as the dynamic interaction between tonic and dominant. This, in conjunction with the fundamental line, provides what Schenker has described as the basic structure of tonal music. Whether or not one wishes to accept all of Schenker's theories concerning the specific nature of the *Ur*-structure, music from the common practice era clearly exhibits a syntactical language which ascribes certain functions to the various chords of the diatonic scale. Secondary dominants, diminished seventh chords, Neapolitan sixths, and augmented sixth chords (among others) add chromaticism to this syntax, but still operate primarily as a means of elaborating the motion between tonic and dominant. Such chromaticism relates to the diatonic syntax by altering a particular scale step temporarily, or by chromatically filling in the space between two diatonic the chromaticism has a direct relationship with the diatonic fundamental structure.

In their search for more elaborate means of expression, composers in the nineteenth century often utilized chord progressions which introduce chromaticism which may temporarily substitute intervallic symmetry for diatonic syntax. Such an example is the following passage from Schubert.[1]

[1]Also analyzed in Felix Salzer and Carl Schachter, *Counterpoint in Composition* (New York: McGraw Hill, 1969) example 7-71, p. 217-218.

Example 1-1. Schubert, Mass in E flat, Sanctus.



In this example the functions of tonic as a point of departure and dominant as penultimate goal are clearly in force. The passing harmonies between these, are a series of root position triads which support alternate whole steps of a descending bass line. This bass line thus composes out a symmetrical space, which is in opposition to the fundamentally assymetric nature of the diatonic scale. The chromaticism is not merely an elaboration of that diatonic syntax, but substitutes cyclically applied intervals (the whole step and the major third) through which a symmetrical segment of the chromatic scale is unfolded and supported by triads on the foreground.

Example 1-2. Schubert, Mass in E flat, Sanctus, reduction.

Such examples exhibit the need for a distinction between progressions which derive from diatonic syntax (through the reinterpretation of diatonic scale-steps and the like) and ones which are based on the symmetrical features of the chromatic scale, though both such motions may exist in the same piece.

The many examples of this kind of harmonic motion are among the first indications that composers were expanding the syntax of their chord grammar beyond the diatonic scale steps. A different demonstration of the dissolution of tonal syntax toward an organization of harmony based on the symmetrical features of the chromatic scale is found in examples which clearly retain the diatonic scale, but do not utilize diatonic tonal syntax at any level. There are two parts to this statement which need to be demonstrated: first, that the diatonic scale actually operates as a harmonic unit without a tonal syntax, and secondly, that this harmonic unit has some meaning as a symmetrical segment of the total chromatic.

With regard to the former, Bartók acknowledged the conscious application of the diatonic scale as a single harmonic collection. Concerning his harmonizations of authentic Hungarian folk tunes Bartók noted that "these primitive melodies, moreover, show no trace of stereotyped joining of triads.... It allows us to bring out the melody most clearly by building around it harmonies of the widest range varying along different keynotes."[2] By consciously avoiding the "stereotyped joining of triads" Bartók's *Bagatelle No. IV*, for example, exhibits a "harmonic fabric (which) seems, therefore, to exist within the D-Aeolian framework rather than functionally participating, in a traditional sense, in the establishment

[2] *Béla Bartók Essays*, ed. Benjamin Suchoff (New York: St. Martin's Press, 1976), p. 342.

of D as a tonal priority."[3]

Bartók furthermore left clear evidence that he was aware of the intervallically symmetrical nature of the diatonic scale: "a diatonic scale can only be shown to be symmetrical when its notes are permuted to form either the Dorian mode (D-E-F-G-A-B-C-D) or a *seven-note segment of the cycle of fifths (F-C-G-D-A-E-B)*" (my italics).[4] It is the latter formation which shows how a diatonic scale, stripped of diatonic function, reveals an inner unity as a cyclical segment of the chromatic scale.

Many examples of Bartók and Debussy contain triadic structures which dominate the foreground texture though these recognizable harmonic structures are freely combined in ways which defy traditional tonal analysis. Because the harmonies (and melodies) of such examples do not unfold a triadic space, the scale itself -- as a subcollection of the chromatic scale, unified by its symmetrical structure-- functions as the middleground harmony. In such examples,motions within this harmonic unit (i.e., any succession of tones which does not introduce pitches outside of the original collection) do not represent a process of diminution, as they do in traditional tonality, but act in the nature of an arpeggiation of the harmony. George Perle has observed that "the point of a key signature in the music of Debussy, for example, is often only to delimit a pitch class collection - usually the whole or part of a diatonic scale - rather than to prescribe a diatonic scale with the implied

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[3]Elliott Antokoletz, *The Music of Bartók*, (Berkeley: University of California Press, 1984), 29. Antokoletz provides an excellent discussion of the role of the diatonic modes, as found in Hungarian folk music, as an important aspect of Bartok's harmonic development, pp. 26-50.

[4]Antokoletz, *Bartók*, 51. Quoted from *Béla Bartók Essays*, ed. Benjamin Suchoff (New York: St. Martins Press,1976), 334-36.

functional associations of tonic and dominant triads, consonance and dissonance, etc."[5]

The audible result of such a harmonic procedure is a musical texture which has been referred to as white-note music by Arthur Berger. Berger discusses the situation in which the notes of a diatonic key are used freely and without reference to their former tonal relations. As such, the diatonic scale operates in the manner of a harmonically unified collection, not as a scale.[6]

The theoretical distinction between the operation of the diatonic scale in a tonal and in a nontonal idiom has to do with the specific nature of the unfolding at the middleground level. In order to be considered tonal, a piece must utilize tonal syntax at some level. As such, pieces which use a key signature and triads are not necessarily tonal according to this definition.

This is perhaps most clearly observed in a monophonic texture. In a traditionally tonal context, even a single line will define a triadic space. The second piece, "Jimbo's Lullaby," of Debussy's *Children's Corner* suite is written with two flats in the key signature, and opens with a monophonic texture. But does the particular melody crafted by Debussy unfold a triad? (See measures 1-8.) The lack of a triadic outline as well as the choice of pitches used to harmonize the tune points rather to the consideration of the collected pitches of the melody as a single harmony. As such, the stepwise aspects of Debussy's melody demonstrate a process

[5]George Perle and Paul Lansky, "Atonality," *The New Grove*, Sixth Edition, Stanley Sadie, ed. (London: Macmillan Pub., 1980) Vol. 1, 670.

[6]Arthur Berger, "Problems of Pitch Organization in Stravinsky," *Perspectives of New Music* (Fall/Winter 1963): 18 ff.

of arpeggiation, rather than one of diminution. The single harmony which is the symmetrical collection A-D-G-C-F is unfolded only through its statement in time,[7] in the same way that C major could be implied by a musical texture which involved only C-E-G. The sonic variety of the scale as harmonic collection allows for greater interest on the foreground level than this imaginary C major example. The nature of such unfoldings at the middleground level gives one a clue to the real meaning behind Debussy's common practice of changing key signatures in the course of even his most simple pieces: it is a convenient way to introduce a middleground change in harmony.[8]

The harmony of the first eight measures could thus be represented as an arpeggiation of the symmetrical collection A-D-G-C-F.[9]

Example 1-3. Debussy, *Children's Corner*, No. 2, mm. 1-8.

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[7]The absence of Bb and Eb in this tune accounts for the initial interpretation of the structural collection as a five-note collection. When Eb is introduced in measure 9, it is part of a whole-tone harmony. When the tune reappears in measure 21, the addition of Bb (in the bass) as part of the structural collection merely extends the five-note collection by one fourth (A-D-G-C-F-*Bb*).

[8]The exception to this is, of course, a movement to a whole-tone collection which cannot be indicated by a key signature, but must be indicated by the consistent use of accidentals, either with or without a key signature.

[9] As the summary of middleground harmony, the collection is abstractly represented on a single staff. As such, the actual registral placement of the pitches of the harmony is not represented in this graph.

At measure 9 the design changes and additional voices are introduced. F and G sound together as common tones of the previous unfolding. Evidence that the change in design is accompanied by a change in harmony occurs at measures 11-12 with the introduction of two new pitches: Eb and Db. Db-Eb-F-G taken as a single structural collection, represent the whole-tone collection on C# (or $C2_1$).[10] The second phrase of this second two-part period takes the melody into the bass register at measure 15. Eb and Db are used as common tones to yet another harmony (Eb-Db-Bb-Gb) as the incomplete representation of the pentatonic collection Bb-Eb-(Ab)-Db-Gb. This represents a momentary motion away from the whole-tone collection, the larger function of which is indicated by the return in double octaves of F and G. Measure 19ff resolves these motions through the arpeggiation of A-D-G-C-F-Bb in all registers, accompanied by the motivic return of the opening melody in the upper voice. By harmonizing the tune of the opening 8 measures with Bb-C-D-F-G Debussy clarifies the harmonic implications of the opening measures. (A-D-G-C-F-Bb = $C5_{9\text{-}10}$).[11]

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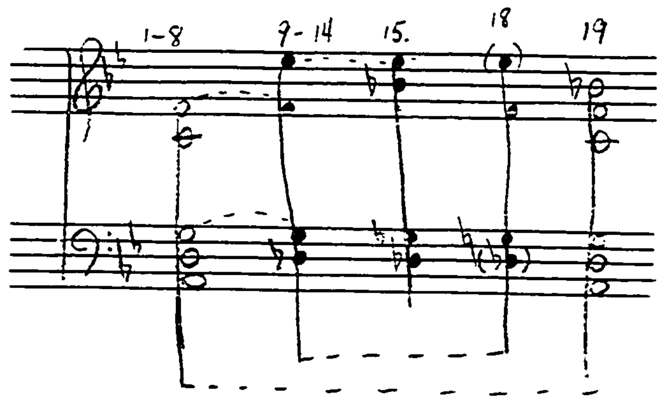
[10]Labels are used to identify structural collections. These labels identify either a whole-tone collection (C2) or a fourth collection (C5), both of which are cyclic collections. In each case the integer indicates the number of semitones in the generating interval. A subscript identifies the specific pitch level of the cycle. $C2_1$ thus indicates the whole-tone collection which includes C# (C=0, C#=1, etc.). cf. p. 34.

[11]C5 indicates a cyclically applied interval of five semitones. The subscript 9-10 indicates the first and last pitch of the cycle where the pitch C=0, C#=1, etc. This method of labelling is adapted from the notation devised by George Perle. cf. p. 34.

Example 1-4. *Children's Corner*, No. 2, mm. 1-19.

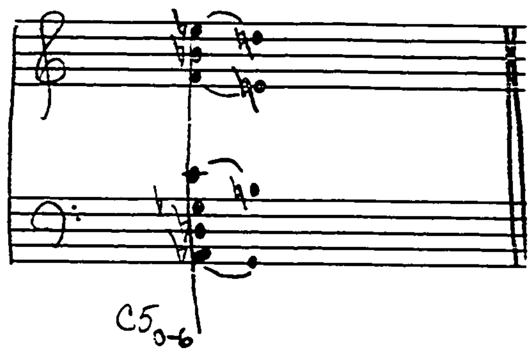


At measure 29 the design changes once again, and a new pitch is introduced: Ab. What follows is a reworking of the material of measures 9-18. The eighth-note figure of measure 9 (also of measures 4 and 15) is elaborated and expanded into the figure of measures 33ff. Ab and Bb are "arpeggiated" in several registers in a manner analogous to F and G in measures 9-18. The collection unfolded in this passage, however is not a whole-tone harmony but the "diatonic collection" Ab-Bb-C-Db-Eb-F-Gb, or $C5_{0-6}$.

In this passage, for the first time, nonharmonic tones are integrated into the foreground texture. The right hand of measure 34, fourth beat and measure 37 contain pitches not found in the harmonic collection. The foreign nature of Cb and D-natural in the first and E-natural and G-natural in the second example introduces a sense of dissonance which is measurably different from that of the so-called "added sixth and ninth" chords which have dominated the texture to this point. Here for the first time are pitches which require resolution at a foreground level.

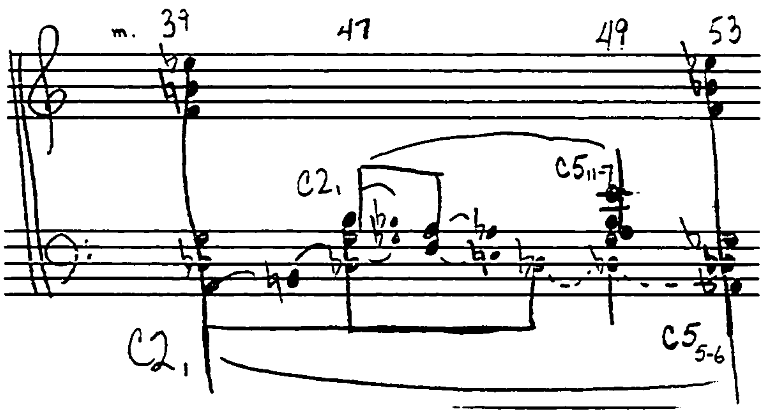
Debussy skillfully manages to build the dramatic tension of his piece by not offering immediate resolution of these tones. Their implied resolutions would be to pitches of the diatonic collection, by half-step.

Example 1-5. *Children's Corner*, No. 2, mm. 29-38.



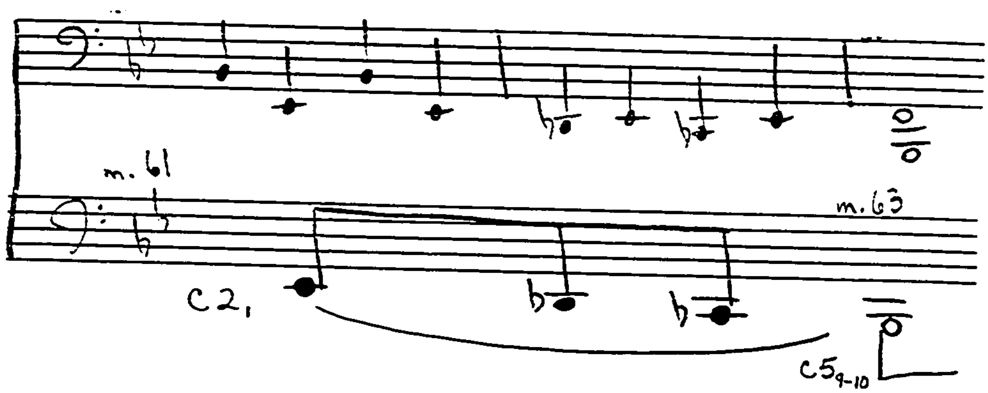
Measures 39-46 effect yet another change in foreground design and involve only the pitches of the whole-tone collection on C#. C# is achieved in the bass at measure 47 as the goal of the rising eighth-note motion of that register where it takes on the role of a pedal point. The right hand of measures 47-48 unfolds $C2_1$ in a manner which includes the other whole-tone collection as chromatic passing tones. At measures 49-52 C# continues as a structural pedal in the bass, while the upper voices move to the pentatonic collection B-E-A-(D)-G represented by G-A-B-E. While E-natural is the only pitch of this collection not in common with $C2_1$, (the original whole-tone collection), its placement in two registers, paired with an A to form a perfect fifth contradicts the whole-tone nature of the passage (there are no perfect fourths or fifths in a whole-tone collection) and indicates this harmony as passing within the larger context of $C2_1$ with Db in the bass. The whole-tone unfolding of measures 39-52 resolves at measure 53. The harmony at this point is drawn from Gb major as a collection.

Example 1-6. *Children's Corner*, No. 2, mm. 39-53.



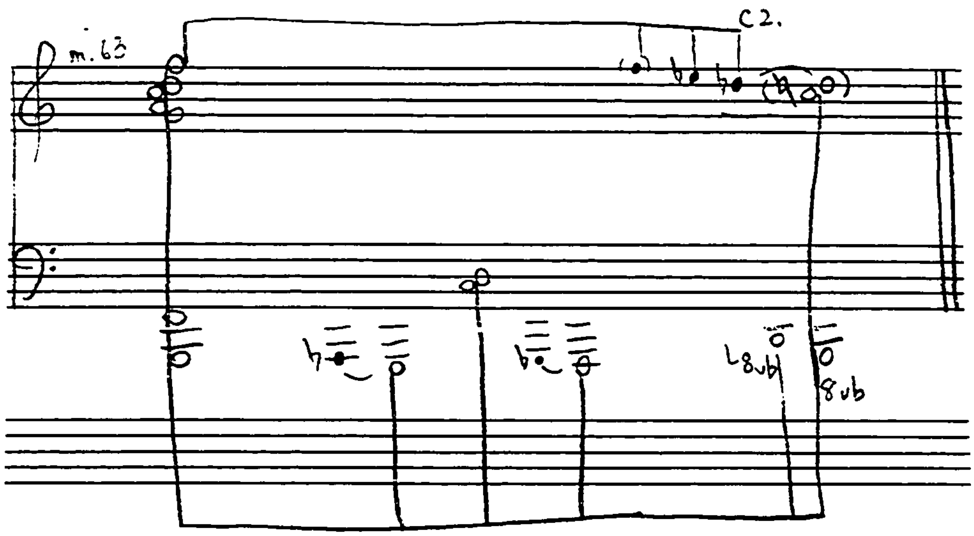
This harmonic unit is fundamentally unchanged through measure 61 despite the foreground motion to Eb in the bass. At measure 62, the introduction of Cb in the bass, together with Eb and Db in the same register marks a brief change in harmony to $C2_1$. This is the same whole-tone harmony which first provided motion away from the original $C5_{9\text{-}10}$ unfolding. Here it is used to affect the return to that collection as the original melodic and harmonic material returns (measures 63-70).

Example 1-7. *Children's Corner*, mm. 61-63.



From measure 63 to the end, there are only very few instances of pitches not found in $C5_{9-10}$ (A-D-G-C-F-Bb). Those which do occur, resolve to pitches of that collection. The Ab in measure 71 and 73 resolves by half-step to G; the Gb's in measure 73, 74, and 75 all resolve to F. These foreground resolutions further establish the harmonic stability of the diatonic collection. Measures 78-79 present Eb and Db in the upper register and thus hint at the whole-tone collection which provided the most elaborate motion away from the primary harmony. The resolution of these two pitches is implied by the final low Bb, which stands for the diatonic collection.

Example 1-8. *Children's Corner*, mm. 63-81.



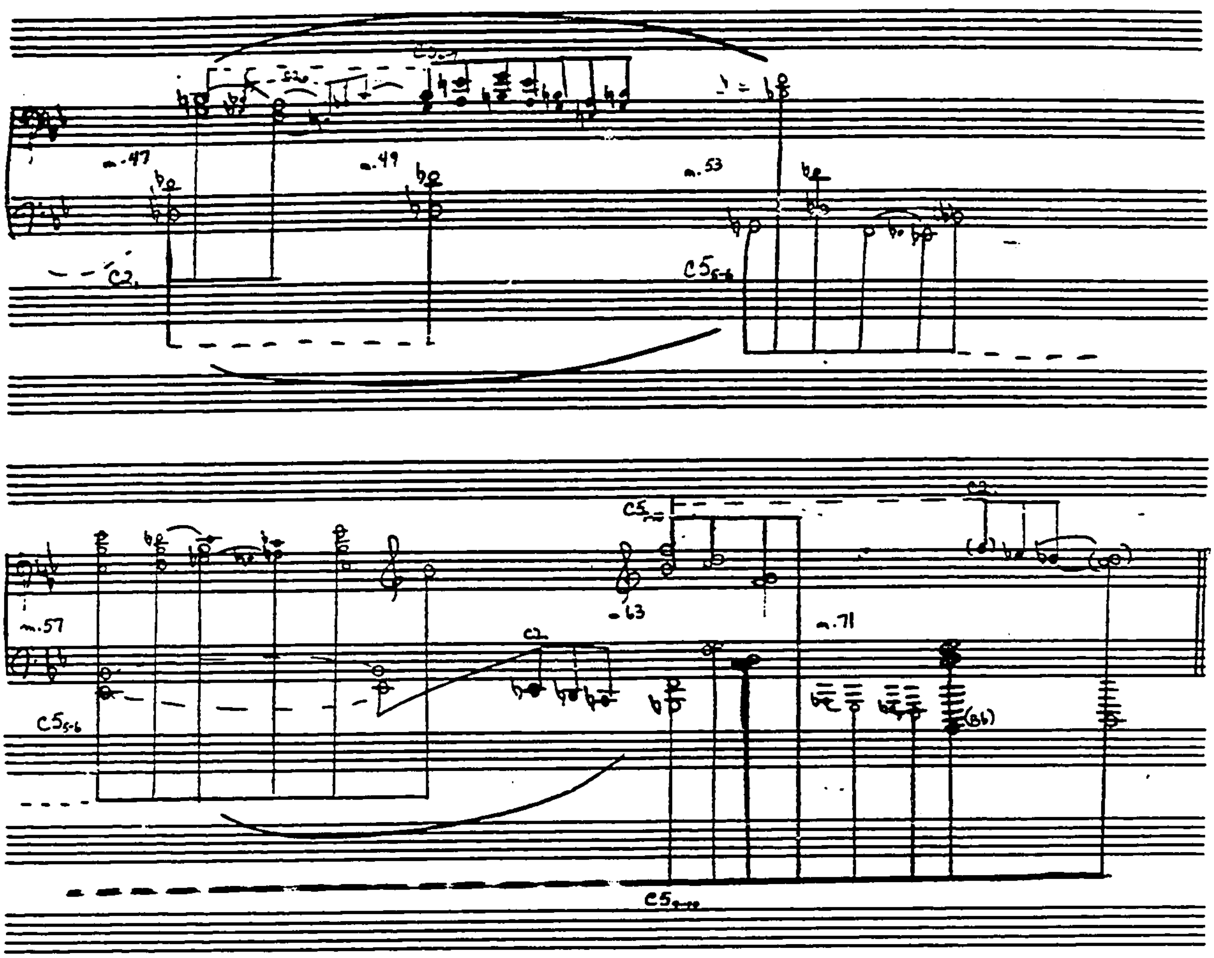
Significantly, there is no dominant triad anywhere in this piece. Furthermore, though Bb clearly has greatest priority, D and F (as part of a Bb major triad) have no more priority than C, G, and A, the other members of the diatonic collection. This is confirmed by Debussy in that the final "cadence" involves the statement of the entire collection. The triads which appear could therefore be termed "pseudo triads," or, at least, "non-functional triads," which are used to unfold portions of the total collection.

In such examples where there is very little chromatic material it is not difficult to establish the diatonic collection (or a segment of it) as a symmetrically derived structure which operates as the basic harmonic unit. The few examples of foreground "dissonance" (i.e., pitches which give the audible effect of requiring resolution to pitches of the diatonic collection) make clear both the relative roles of the these two distinct types of pitches and the voice leading which connects them. We may decide to call the pitches of a locally functioning diatonic collection "structural," and the foreign, voice-leading related pitches "nonstructural." It is furthermore possible that these roles of structural and nonstructural may be transferred to deeper levels of structure. The motion to the whole-tone collection in this example could thus be viewed as structural at a local level, and nonstructural (or prolonging) at a deeper level. The transference of such concepts to nontonal music is significant specifically for what it does *not* redefine in terms of our perception of music. The following graph (Ex.1-9) summarizes the voice leading of Debussy's *The Children's Corner*, No. 2.

Example 1-9. Debussy, *The Children's Corner*, No. 2.

Example 1-9, continued.

Example 1-9, continued.



Just two years before Debussy composed these little piano pieces Arnold Schoenberg composed his *Kammersymphonie*, No. 1, Op. 9. In the famous opening passage of this piece, Schoenberg presents a chord based on superimposed fourths, a chord based on the whole-tone collection and the resolution of both of these to a triad. These three different elements (fourth chords, whole-tone harmonies and triads) present "the harmonic idea of the piece at once."[12] This is not an offhand comment which applies only to this opening passage. There are numerous passages based primarily on melodic and harmonic material derived from either fourths or whole-tones throughout the work, and especially from rehearsal numbers 68-86.

The *Chamber Symphony* thus offers Schoenberg's own solution to the problem of expanding diatonic/chromatic harmony. Like Debussy, he seems to involve pitch collections which are derived from the symmetrical projection of intervals. These collections may, at times, coincide with diatonic scales, but the *Chamber Symphony* of Schoenberg is no more "in E major" than the Debussy example is "in Bb major." Furthermore, even though Schoenberg makes more regular use of the total chromatic than Debussy, both composers demonstrate that pitch class collections derived from a single interval of generation are a significant part of their post-common-practice-tonality approach to harmony.

In this as well as others of his last pieces to use a key signature Schoenberg thus indicates that he is moving away from diatonic harmony to a practice in which symmetrical structures such as fourth and whole-

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12 Arnold Schoenberg, "*Chamber Symphony*, No. 1, Op.9," contained in liner notes to "The Music of Arnold Schoenberg, Vol. III," Robert Craft, conductor. (Columbia Masterworks ML 6045, 1965), 32.

tone harmonies substitute (at least in part) for functional tonality. Though it would have been speculative in 1906 to consider exactly where such a reconsideration of harmony might lead, Schoenberg (writing in 1950) considered his "most decisive steps" toward his ultimate development to be found in his *Two Songs*, Op. 14 and the *Three Pieces*, for piano, Op. 11.[13] In this article written at the end of his life, Schoenberg speculates on his own development and acknowledges his Op. 14 songs as decisive steps away from common practice tonality and (we may assume) toward his ultimate development of the twelve-tone method.

The Op. 14 songs use a key signature but, like the *Chamber Symphony* and the Debussy example, utilize an approach to harmony which is clearly different from common practice tonality. As such, these songs provide further clues which point to Schoenberg's eventual abandonment of triadic reference. By examining what is consistent about the harmonic texture of these songs (which include non-functional triads), we can speculate about harmonic procedure in Schoenberg's next pieces, which exclude triads.

In the opening measures of Op. 14 no. 2, the piano plays a phrase which ends with a C major triad. Most of the harmonies which precede this triad however seem to act in the manner of the pseudo triads of the Debussy example. Each chord, even the C major triad with which the phrase ends, is a partial statement of a larger collection. Characteristic of Schoenberg, there is a greater rate of harmonic change and there is a greater concentration of pitches outside the "key signature" delimited

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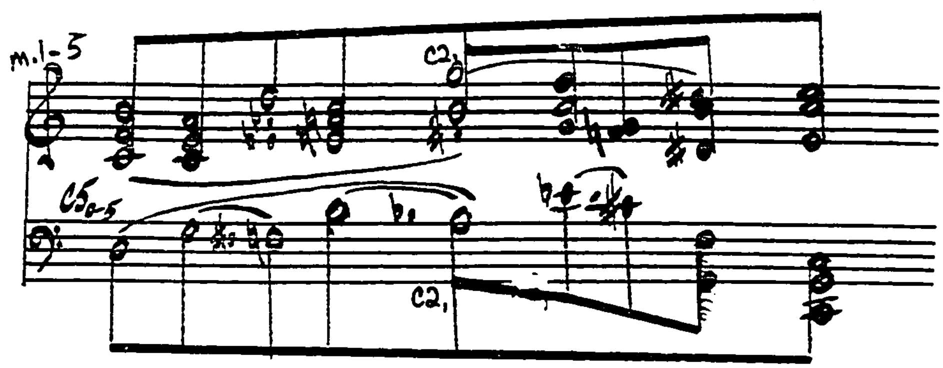
[13]Arnold Schoenberg, "My Technique and Style", in *Style and Idea*, ed. Leonard Stein (London: St. Martins Press, 1975), 110.

collection.

Example 1-10. Schoenberg, *Two Songs*, Op. 14 no. 2, mm. 1-5.

Notes that sound like passing tones to the ear, (the last eighth-note of each of the first three measures) are thus interpreted as nonstructural passing tones. The second chord of measure 3 denotes a harmonic change from a fourth unfolding, to a whole-tone harmony, in m. 4. The C major triad at the end of the phrase resolves the whole-tone unfolding which precedes it. As such, the whole-tone harmony is nonstructural at a deeper level.

Example 1-11. Schoenberg, *Op. 14*, No. 2, mm. 1-5.



The triad as the ultimate resolution in this passage functions in a role very similar to traditional harmony. The whole-tone harmony which acts as penultimate merely expands the penultimate function of the dominant.[14] The pre-dominant which unfolds in the first measure of this passage is the white note collection of C major (itself prolonged by chromatic passing tones). Weinberg has asserted that the final step to Schoenberg's posttonal style occurs when all reference to triads is replaced with such contrapuntal unfoldings, and the dominant triad is no longer a reference for the whole-tone collection. Because of its historical relation to the dominant, whole-tone harmony furthermore primarily occupies the role of prolonging harmony in the posttonal music.

This example by Schoenberg is similar to the Debussy example (and

[14]Whole-tone harmonies are explained as an outgrowth of dominant harmony in Arnold Schoenberg, *Theory of Harmony*, trans. Roy E. Carter (Berkeley: University of California Press, 1978), p. 391. This translation is based on the third edition (Vienna: Universal Ed., 1922). All references to Schoenberg's *Theory of Harmony* refer to this translation.

numerous examples in Bartók) in that "the point of the key signature ... is... only to delimit a pitch class collection."[15]George Perle and Paul Lansky, "Atonality," 670. Schoenberg, however, through the use of chromatic voice leading, incorporates the entire chromatic scale into his harmony (all twelve pitch classes appear in this phrase). The appearance of triads on the surface of these songs should not lead to a purely tonal interpretation any more than in the Debussy (or the folk-song harmonizations of Bartók).

[15]George Perle and Paul Lansky, "Atonality," 670.

CHAPTER TWO

A METHOD FOR ANALYZING SCHOENBERG'S POSTTONAL MUSIC

The music written by Arnold Schoenberg between the *Chamber Symphony*, Op. 9 and the first works to employ his new "method for composing with twelve tones related only to each other" comprise some of his most well-known and controversial works. The analytical method of Henry Weinberg which is at the center of this study proposes that this posttonal music displays a more systematic approach to pitch than has been previously acknowledged.

Weinberg has identified structural and nonstructural pitch collections in Schoenberg's posttonal music. These distinctions function in a manner similar to that shown in the Debussy example of the previous chapter. A structural collection (or a structural pitch) will be one which has theoretical primacy over nonstructural pitch material. Though Weinberg originally proposed that these structural collections are exclusively fourth and whole-tone collections through an intuitive response to the music. He subsequently found the theoretical justification for this in Schoenberg's *Theory of Harmony*, in the chapters on "Chords Constructed in Fourths" and "The Whole-Tone Scale and Related Five and Six-part Chords,"[16]

Theorists from the late sixteenth century on have demonstrated their awareness that the triad was a significant force in the music of their time. Schenker provided a paradigm for tonal music which expanded our understanding ofthe function of the triad as a deeper organizing force in tonal music. The schematic presentation of fourth and whole-tone harmonies in Schoenberg's *Theory of Harmony* might be expanded to provide a paradigm for the analysis of Schoenberg's postonal music, and for the music of some other composers. These two symmetrical interval cycles form the basis for the analytical method proposed here. Rather than offer extensive reasons why these interval cycles and not others are the only ones considered, I hope that the analyses themselves will provide sufficient evidence, at least for the works analyzed herein. A thesis concerning the role of such structures in other music will have to be proved or disproved, one piece at a time, in a manner not unlike Schenker's.

STRUCTURAL AND NONSTRUCTURAL COLLECTIONS

In the proposed analytical view, structural and nonstructural pitches and collections establish a relationship to one another which is the posttonal equivalent of harmonic and nonharmonic. In Schoenberg's posttonal music a nonstructural pitch will resolve by semitone (or imply such a resolution) to a structural pitch. As such, nonstructural pitch material prolongs structural pitch material, to use the language of

[16]Schoenberg, *Theory of Harmony*, 390-411.

Schenkerian analysis. The interpretation of the structural collection as the middleground result of foreground voice leading provides this posttonal music with a means of distinguishing levels of structure in a way which is analogous to the role of harmonic and nonharmonic tones in tonal music. In a manner analogous to the way the triad unfolds in time through the interaction of the concepts of harmonic and nonharmonic, a fourth or whole-tone collection unfolds in time through the prolongation of structural pitch material by nonstructural pitch material.

The nature of prolongation in this music is the result of the dynamic interaction of structural and the nonstructural pitch material. In tonal music, the fundamental structural element (the triad) is prolonged by the interaction of the diatonic scale and the role of the dominant. At higher levels, prolonging scale steps may be made locally consonant and thus have their own prolongations. In posttonal music, the conceptual distinction between the structural collection as fundamental and the nonstructural collection as prolonging allows for a similar multi-leveled view. The pitches of the nonstructural collection resolve to (or imply a resolution to) the pitches of the structural collection by semitone voice-leading, of a nature similar to the semitone resolutions in the Debussy example.

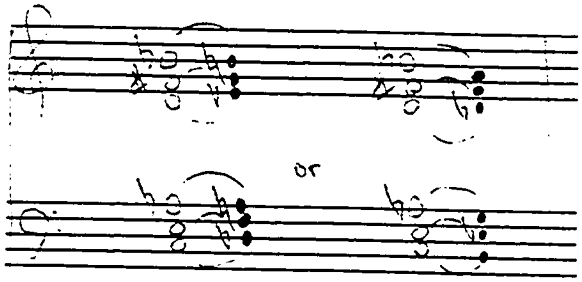
These individual semitone relationships create a deeper level connection between the structural and nonstructural collections: the nonstructural collection is the semitone transposition of the structural collection. This middleground relationship is made clear by Schoenberg at the foreground level through the use of what Weinberg refers to as a "fixed neighbor-tone" relationship: each pitch class of the structural collection establishes a fixed relationship with one of its semitone neighbors. This is a preserial example of what Babbitt has termed partial ordering.[17] This partial ordering (one structural pitch and one nonstructural pitch) does not result in a fixed ordering of pitch material as would be expected in Schoenberg's twelve-tone music; the pairs of pitches which appear in the posttonal music are freely ordered. The fixed neighbor-tone relationship, however, is responsible for a more functional organization of the pitch material than the mere division of the total chromatic into primary and secondary hexachords. Furthermore, to the extent that such an arrangement of tones prefigures an aspect of Schoenberg's serial composition, the partial ordering of the pitch material in the preserial music demonstrates evidence of an evolutionary development in Schoenberg's style which has been heretofore unacknowledged.

The following example (ex. 2-1) demonstrates the foregoing relationships as they would operate at the middleground level with a structural whole-tone collection. The specific neighbor-tone relations of the prolonging hexachord (the other whole-tone collection) will display one of two possible relationships with the structural collection. Thus, there is a hierarchical relationship among all twelve tones, established through voice leading, at the middleground level.[18]

[17]Milton Babbitt, "Twelve-Tone Invariants as Compositional Determinants," *The Musical Quarterly*, 46 (1960), 246,ff.

[18]The use of six-note collections for the music of Schoenberg is viewed as normative due to evidence in his theoretical writings, and in his compositions. Other composers may use six-note structural collections, or structural collections of fewer or more pitches.

Example 2-1.



Due to the presence of a single semitone within a structural fourth hexachord, its semitone transposition (the fixed neighbor-tones) will yield only eleven notes. (See example 2-2a.)

Example 2-2.

Through semitone voice leading, the "missing" twelfth pitch class, is related to a pitch of the nonstructural collection. This twelfth pitch constitutes a distinct third level which is used by Schoenberg to distinguish transpositions of the structural collection. (See example 2-2b.) This third level is thus not unlike the tonal equivalent of a foreground chromaticism which later gives rise to a deeper level chromatic motion.

A structural whole-tone hexachord will obviously not involve this third level as its semitone transposition yields the other whole-tone hexachord and thus all twelve pitch classes. The whole-tone hexachord will generally be viewed as prolonging; its ultimate resolution will be to a fourth collection. This is in part based on Schoenberg's own derivation of the whole-tone hexachord from dominant harmony in the *Theory of Harmony.*[19]

DISTINCTION FROM "QUARTAL" THEORY

The manner of analysis proposed by the present study differs markedly from discussions of "quartal harmony" which specifically consider only the foreground happenstance of chords built with fourths, rather than thirds. Schoenberg himself stated: "If we speak of chords constructed in fourths, it is in no way meant to suggest replacement of the old tertian system by one based on quartal construction."[20] The method proposed in this study considers fourth collections (or whole-tone collections) as the middleground result of voice leading derived from harmonies which are not *necessarily* constructed in perfect fourths or whole-tones. That is, individual harmonies which are not exclusively constructed from either whole-tones or fourths, can be reduced to middleground whole-tone or fourth structures through a process of linear analysis. As such, the analysis reveals the presence of multiple levels of structure in music for which such attributes were previously not

[19]Schoenberg, *Harmony*, 397-9.

[20]Schoenberg, *Harmony*, 399.

considered.[21]

DERIVATION OF WEINBERG'S METHOD

The hypotheses of the method are the collective result of observations of many examples. The distinction between structural and nonstructural stems from the intuitive response to the foreground in which semitone related pitches often give the impression of affecting or requiring resolutions, thereby acting in the manner of "harmonic" and "nonharmonic" tones.

The hypothesis that the total chromatic is divided into hexachords at the middleground level is based on numerous examples in which aspects of phrase and gesture coincide with the unfolding of six (rather than five or seven) structural pitch classes: this is especially true in Schoenberg's music immediately prior to the twelve-tone music. It is possible that collections of four, five or even seven related pitches could be viewed as structural in the music of other composers; the so-called "pentatonic" passages commonly found in the music of Debussy are a particularly striking example of five-note fourth collections. For Schoenberg's posttonal music equal divisions of the total pitch field seem to be the norm. The hexachordal, tetrachordal, trichordal and dyadic divisions of

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[21]It bears mention that the voice-leading aspect of the proposed method is in direct opposition to the currently popular Fortian pitch-class-set analysis. Both in his earlier terminology of "sets" and "non-sets," and in his later pc-set theory, Forte specifically rejects voice leading, and thereby also rejects the notion of multiple levels of structure, and the posttonal equivalent of harmonic and nonharmonic, as meaningful functions of posttonal music. The lack of such considerations, in the author's opinion, severely limits the usefulness of Forte's observations. See Allen Forte, "Sets and Non-Sets in Schoenberg's Atonal Music," in *Perspectives of New Music* 2 (1972): 43-64, and Allen Forte, *The Structure of Atonal Music* (New Haven: Yale University Press, 1973).

the row which characterize the twelve-tone music of Schoenberg and others thus have their procedural roots in Schoenberg's earlier music.

The hypothesis of the fixed neighbor-tone relationship is the result of numerous observations in which particular semitone relations appears most prominently, though not necessarily exclusively.

In addition to the evidence found in Schoenberg's theoretical writings and compositions, the exclusive consideration of fourth and whole-tone collections as structural hexachords in this music and the consideration of the semitone as the single interval of contrapuntal motion is influenced by the observation that each of these intervals has a special role in the total chromatic. The perfect fourth and the semitone (and, of course, their inversions) are the only intervals which generate the entire chromatic. The whole step uniquely generates half of the chromatic, partitioning the total pitch field into two collections of identical interval yet mutually exclusive pitch content. These are the only three intervals which can generate a hexachord. The previous chapter has already demonstrated how the symmetrical features of the chromatic scale contributed to the eventual dissolution of common practice tonality, the special characteristics of the perfect fourth, the whole-tone and the semitone these intervals with a means of providing order in a totally chromatic texture.

The principles and method of analysis proceed first and foremost from the assumption that pitch plays a meaningful role in the articulation of motives and phrases, as well as deeper functions involving the articulation of form. The repetition of pitch, register, the role of the octave and the function of the outer voices, as well as the element of time are all aspects of the analyst's methods. One of the most important roles which the interaction of pitch plays is the differentiation of levels of structure. The effect of this on the perception of posttonal music and tonal music is virtually the same.

In order to examine the long range effect of the method, the central focus of this study will be the analysis of a complete work: *Six Little Pieces*, Op. 19, for piano of Arnold Schoenberg. To explain the method more fully, I will precede that discussion with an analysis of the first song from Arnold Schoenberg's Op. 15, *The Book of the Hanging Gardens*, a piece in which Professor Weinberg first explored this analytical method. The analysis of Op. 15 no. 1 is my reconstruction --from notes, seminars, and private discussions --of Weinberg's analysis. Weinberg is responsible for the general analytic method, many of the procedural aspects and the specific findings of this analysis. The author has contributed a means of graphically representing the findings of the method. All other analyses in this study will use the same method.

The analytical method proceeds from an intuitive response to the music. The assumption of the existence of structural and nonstructural pitches, as well as a voice leading connection between these leads the analyst's ear to reduce from the foreground. As in the analysis of tonal music, many features of the foreground are only brought into clear relief through an understanding of the complete structure. As such, the analysis will undoubtedly reinforce certain intuitive responses to the music: this, however, should not create the expectation that the most prominent pitches are necessarily the most structurally important.

The graphing technique depicts which pitches belong to the structural and nonstructural collections and how these collections and relationships appear in the music.

The notational symbols are as follows:

1. BEAMS - A solid beam connects pitches belonging to a single structural collection. Such collections are generally unfolded over the course of several phrases. Where a phrase begins or ends with a nonstructural tone, the beam begins or ends with a stem which is not connected to a pitch. When a single structural collection unfolds over more than one phrase, the beam is broken thereby illustrating the interaction of harmonic unfolding and phrase structure. Dotted beams connect an unfolding which continues into the next phrase. Dotted beams also connect individual pitches which may be prolonged in a given unfolding, or from one unfolding to another.

2. NOTE VALUES - Half-notes connected to beams indicate the structural pitches of a given unfolding. Solid unstemmed pitches are generally nonstructural and are usually slurred to their "fixed neighbor-tone" to show that relationship. The unique "twelfth note," which represents a separate level of structure appears as a solid stemmed pitch marked with an asterisk. Grace notes indicate levels of structure more foreground than solid unstemmed pitches.

3. SLURS - Solid slurs have two separate meanings. They indicate harmonic motion from one collection to another. And they indicate the dyadic relationship of structural and nonstructural pitch material within a single collection. Dotted slurs are used to indicate a prolonged pitch or collection.

4. LABELS - Each structural collection has a label indicating the particular intervallic cycle which generated it. "C" stands for "cycle" and is followed by a number which indicates the number of semitones in the particular cycle. C2 thus indicates a collection generated by a cycle of 2 semitones (i.e. - one of the whole-tone scales); C5 indicates a collection generated by a cycle of 5 semitones (i.e. - a collection of pitches each separated by a perfect fourth). In addition a subscript integer indicates the exact pitch level at which the cycle begins: C=0, C#=1, etc. Only two subscript notations are necessary ($C2_0$ and $C2_1$) to distinguish the whole-tone collection on C and the one on C# respectively. In the case of fourth collections, two integers in subscript separated by a dash ("-") will indicate the first and last pitch of the cycle. $C5_{6-7}$ thus indicates a cycle of perfect fourths beginning on F# and ending with G, or the collection F#-B-E-A-D-G.[22]

5. NEIGHBOR TONES - The fixed dyadic relationship of the nonstructural tones to the primary collection is represented as a separate level. The structural collection is abstractly displayed on two staves in half notes or quarter notes -- depending on the long range significance of the local unfolding -- with the nonstructural neighbor-tones to which each is contrapuntally connected displayed as unstemmed solid note-heads. The twelfth note is again represented by a stemmed pitch marked with an asterisk.

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[22]The labeling method used is the author's adaptation of the method first used in George Perle, "Skriabin's Self- Analysis," *Music Analysis*, 3 (1982) 101-122 and *The Operas of Alban Berg, Volume II* (Berkeley: University of California Press, 1985), Chapter 4.

CHAPTER THREE

THE METHOD APPLIED TO SCHOENBERG *OP. 15* NO. 1

The text of the first song of Schoenberg's *The Book of the Hanging Gardens* introduces us to Stefan Georg's fantastic image-laden poetry. We are in a "thickmeshed" garden in which "feathery snowflakes" fall from stars; "voices murmur of their pains and plaints"; "fabled beasts... spout their glistening jets in marble fountains"; and "tall white candles set aglow the foliage, /whitened shapes to parse the water's play."[23] Unrequited love, though common enough in both poetry and song cycles, has rarely been more overtly passionate and physical in its portrayal: "If today I do not touch your body/ all the fibers of my soul will snap/ like bowstrings stretched beyond enduring."[24] Schoenberg creates a sound world for these poems which has been described, for lack of a more

[23]Robert Erich Wolf, translator, record jacket notes for Arnold Schoenberg's *The Book of the Hanging Gardens*, Op. 15 (1908), 15 Poems from Stefan Georg's *The Book of the Hanging Gardens*. Performed by Jan DeGaetani and Gilbert Kalish (Nonesuch H-71320, 1975).

[24]*Hanging Gardens*, no. 8.

precise term, as "free atonal." This world clearly renounces the triad and tonality, though what might be in place of these to organize harmony has confounded students and listeners of this music since its first appearance. The analysis which follows is intended to demonstrate that Schoenberg's approach to harmony in these songs is not nearly so free as first (or even second or third) hearing might seem to indicate.[25]

Even on first hearing, there are passages which have an immediate effect. Among the most striking is measure 13 in which the piano seems to illustrate the "spouting, marble, fabled beasts" of the fountain within the garden. While the piano part might give the first impression of an impassioned burst of romantic impulse, a closer look at the left hand figure (which crosses over the right hand) shows that the identical chord (G-C-D-A) is presented in two distinct registers and then transposed in contrary motion in each of those registers. The most audible component of this passage is the stepwise descending bass line, A-G-F-D#. Whatever else may be said about the meaning of pitch material in this passage, the nature of this bass line as a segment of one of the whole-tone collections lends the passage a considerable degree of harmonic coherence.

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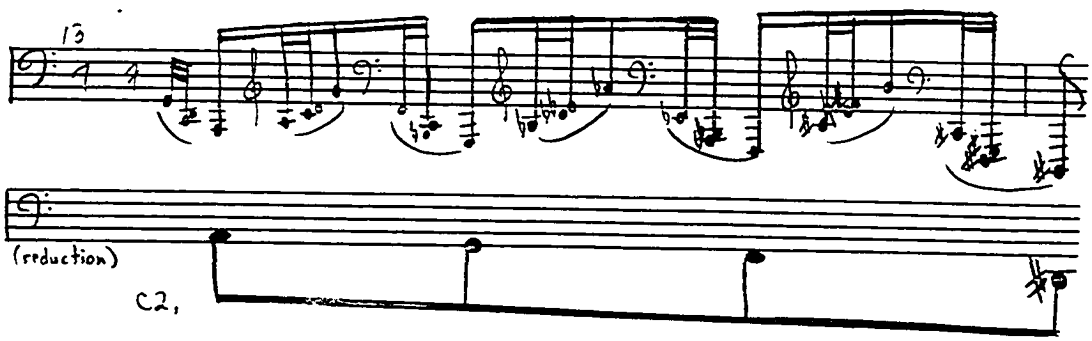
[25]The reader is reminded that the analysis of Schoenberg's *Op. 15*, no. 1 is my reconstruction of Weinberg's analysis. The graphing method, and the graphs themselves, are mine.

Example 3-1. Schoenberg, *Op. 15* no. 1, m. 13.



In measures 15-16, the other whole-tone collection is clearly represented in a less complex texture, in both the piano and the voice. Though pitches outside this collection appear, the whole-tone nature of these measures is made very explicit in the *fluchtig* run in measure 16 (G#-F#-D-C-Bb). This is followed immediately by a sense of resolution in measure 17 and the reappearance of the chords A-C-D-G and B-C-E. These are the same chords which were the point of departure for the whole-tone progression in measure 13. Furthermore, these same chords appeared in several octaves in measures 10 and 11 as the goal of the opening period. There is a close aural connection between the various statements of these white-note chords in measures 10 and 11 and their reappearance in measure 17. There is a similarly strong aural connection between the opening motive (F#-D-F, repeated three times) and its return in measure 19. The importance of F# in the opening measures and its absence from the white-note chords indicates that this pitch plays a role in distinguishing two harmonic areas.

Without yet specifically accounting for all of Schoenberg's pitch material, it seems reasonable to assert that the song opens with a harmony which involves F# (among other pitches), and the motive F#-D-F (which is repeated three times in the opening 9 measures). The many octave doublings of the white-note chord in measures 10-13 and the absence of the motivically significant F# indicate A-C-D-G and C-B-E (or, B-E-A-D-G-C) as a second harmonic area. This second harmony then initiates a motion away in measures 13-16 which involves each of the two whole-tone scales, in turn. (The bass register whole-tone outline and the middle register *fluchtig* whole-tone outline are each drawn from different whole-tone scales.) At measure 17 this motion away is resolved through a return to B-E-A-D-G-C. At measure 18 the original harmony is reasserted through the return to F# and the opening motive and the song comes to its final cadence. This is schematically diagrammed in Example 3-2.

Example 3-2. *Op. 15* no. 1, "Sketch."

The strength of these aural connections led Weinberg to a more detailed analysis which accounts for the foreground voice leadings. The detailed analysis supports the intuitively derived findings of the above diagram. In expanding this diagram it is necessary to differentiate structural pitch material from nonstructural. The white-note chords of measures 10-13 and 17-18 present a relatively uncomplicated case for this and demonstrate the general procedure for determining the various function of pitch material. After several repetitions of the chord B-E-A-D-G-C, pitches which are outside the collection (the high D# in the piano in measure 11, for example) give a clear impression of resolving back to a pitch of the structural harmony. (See Example 3-3.)

Example 3-3. *Op. 15* no. 1, m. 11.

The opening of the song presents just a few pitches at a time thus making it less clear that a group of pitches are acting as a structural collection. Yet the G#-G in measure 2 gives the impression of an appoggiatura as surely as the D#-D in measure 11. In both cases, the foreground halfstep is interpreted within a context established by a group of pitches which are heard as a harmonic unit. In order to demonstrate this, compare the effect of this opening tune with the "recomposition" below.

Example 3-4. *Op. 15* no. 1, mm. 1-2, and "recomposition."

By replacing D with C# and E with D# the role of G# and G are interchanged. D#-G#-C#-F# form a series of perfect fourths which provides a context within which G# has a tendency to now sound as a structural pitch and G-natural sounds as its nonstructural semitone neighbor. In Schoenberg's version, F#, E, D and G could be viewed as a partial statement of F#-(B)-E-(A)-D-G, and thus G will sound as the structural pitch.

The most basic assumption of the method is: whether presented as a vertical sonority or unfolded gradually in time, pitches which are part of a collection generated by either perfect fourth or whole-step tend to sound as a structural harmonic unit. Though Schoenberg rarely presents an entire structural collection without using any nonstructural pitches, (the white-note chords of *Op. 15* no. 1 are an exception) it is common to find as many as four structural pitches closely associated on the foreground. Where these more obvious groups of structural pitches appear, they will aid in the interpretation of the less obvious voice leadings.

Proceeding in this manner, F#-D-E-G are interpreted as structural in the first phrase, F-natural and G# are nonstructural tones. The second phrase repeats the first three notes of the opening tune followed by a leap up into the higher register (similar to the first phrase) to C# which gives the momentary effect of being analogous to the G# of the first phrase, but C#, rather than moving on to C-natural as might be expected, is followed by A#. C#-A# are pitches outside the structural collection (F#-D-E-G) and are interpreted as nonstructural. These two nonstructural pitches give rise to other nonstructural pitches in the third phrase. Eb, F, Db (in two registers), together with the A# of the second phrase, though nonstructural in relation to the opening collection, are themselves related as a collection: F-Bb-Eb-(Ab)-Db. As such, there is a middleground harmonic motion from F#-E-D-G to F-Bb-Eb-Db over the course of three phrases.

The prolonging nature of the latter collection is confirmed by the return to F# in the bass, doubled at the octave, and the repetition of the opening tune. This motivic return is anticipated in the voice leading at measure 5 where E, presented in a new octave and further emphasized by its marking of *sforzando*, resolves the diffusive quality of the motions to nonstructural pitches and restores the primacy of the structural collection. The motivic return of the opening material and the added support of the octave doubling make this a relatively strong "cadence;" the F-natural is left unresolved in a manner which will become a repeated motivic aspect of the voice-leading.

The reaffirmation of the original collection continues with the entrance of the soprano which supplies B and D (B fills in one of the missing fourths of the structural collection) and goes on to reinforce E as a structural pitch. Though A (in measure 10) is only briefly touched upon, it supplies the pitch of the structural collection which has been absent up until now. It is furthermore heard in close proximity to all of the other structural pitches, all of which are presented melodically in the soprano in measure 10.

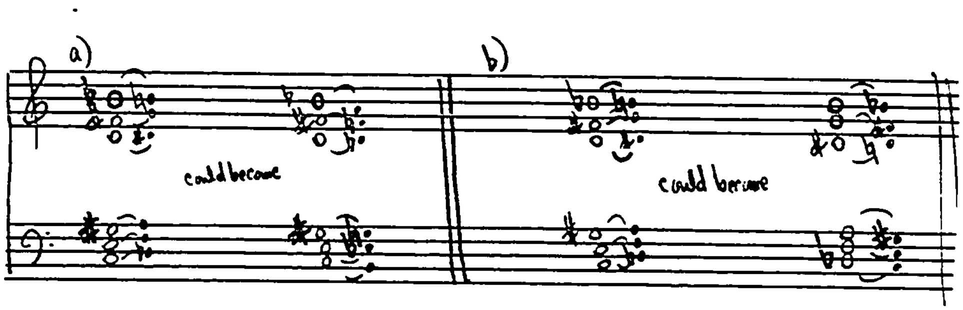
The structural collection of measures 1-10 is thus established as F#-B-E-A-D-G. Among the basic postulates of Weinberg's theory is that Schoenberg's deep structure involves the unfolding of a six-voice harmony, prolonged by the remaining pitches through semitone voice leading. This is very close to the manner in which a structural collection is prolonged in the Debussy example. In both cases, the semitone is the interval of linear motion, and all other intervals produce a new (or at least a potentially new) structural pitch. The division of the total chromatic into six structural and six prolonging pitches has already been mentioned as a significant as a foreshadowing of Schoenberg's serial technique.

With the identification of the structural collection, context has furthermore linked G with G#, and F with F# in the first and second phrase. In the third phrase, Eb, F, and Db represent the displacement of E, F#, and D, respectively, in the first two phrases. The C# in the middle register resolves to D at the entrance of the voice which also provides B as the resolution of A#. The C-natural of measure 5 is at least temporally connected to C#, in measure 9 the relationship of D, C# and C-natural is explicitly stated in the soprano. As such, a specific pitch by pitch relationship is created between the structural collection and the prolonging collection: F# is prolonged by F; B by Bb; E by Eb; A remains uninflected; D by C#, C# by C (this is the neighbor-tone of the neighbor-tone relationship); G by G#. See Example 3-5.

Example 3-5. *Op. 15* no. 1, mm. 1-9.

In examining the remainder of the piece, we will be concerned both with the content of the structural collection (which may change) and the nature of the dyadic pairs (which may or may not change). For example, theoretically, a structural whole-tone collection can have one of two possible arrangements of neighbor-tones. As such, in a given context it would be possible to switch the neighbor-tone relationships without changing the content of the structural collection (Example 3-6a), or to change the structural collection without changing the neighbor-tone relationships (Example 3-6b). As various situations arise, the meaning of each new relationship will ultimately be determined by the context of the complete analysis.

Example 3-6.



For example, just at the point when the initial structural collection is completed (measure 10) in the voice part, the piano begins to present certain new pitch relationships. The first of these is the vertical semitone D#-E in measures 9-10. In measures 1-5 D# was viewed as the neighbor-tone to E-natural. Weinberg has postulated that a structural pitch and its neighbor-tone will not appear simultaneously as a vertical semitone. Their presence as a simultaneity in the same octave indicates a shift in the voice-leading: D# can no longer be the linear neighbor-tone to E; context now links D# and D as neighbor-tones. The foreground voice leading (D#-E as a simultaneity followed by D-E) in measures 9-10 supports this. The use of such a voice-leading technique allows Schoenberg to highlight a particular pitch at the moment of its harmonic re-interpretation.

Example 3-7. *Op. 15* no. 1, m. 9.

A related postulate concerning the foreground appearance of a vertical semitone has to do with what Weinberg calls the "structural semitone." A collection of six notes arranged as a series of fourths (B-E-A-D-G-C) yields only one semitone (B-C). It is the unique interval and it succinctly defines the collection. In measures 10-13, B and C appear as a simultaneity in three different octaves. The foreground emphasis of the structural semitone thus provides a strong clue to the ear that the collection F#-B-E-A-D-G (which contains the structural semitone F#-G) has been transposed. This is one of the basic tenets of Weinberg's analyses.[26]

The long range motion from the collection F#-B-E-A-D-G ($C5_{6\text{-}7}$) to B-E-A-D-G-C ($C5_{11\text{-}0}$) involves the difference of only one pitch. As such it represents a motion to the closest content group. Schoenberg makes the most of this difference by changing the neighbor-tone relationship of the nonstructural collection. From the fourth beat of measure 10 through measure 11 (with the exception of the D# in the high register which

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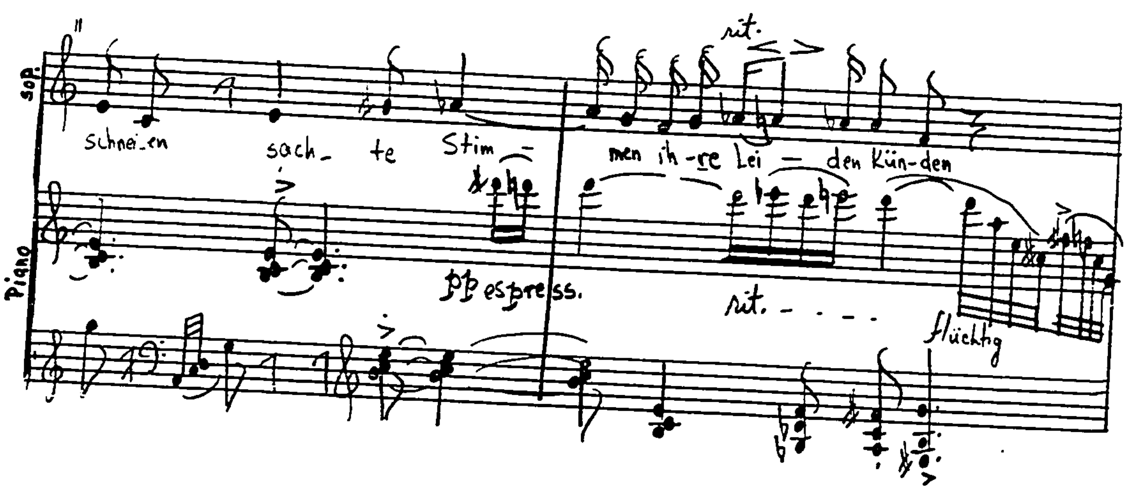
[26]Weinberg has adopted the nomenclature of using the unique structural semitone to identify a six-note fourth collection. The author's "C" notation represents this aspect in pitch-class integer notion. In the notation $C5_{11\text{-}0}$, "11-0" indicates "B-C," thus reflecting the structural semitone.

repeats its resolution to D) the piano abruptly presents the entire new structural collection: B-E-A-D-G-C. This rapid unfolding is in contrast to the gradual unfolding of the first collection. Its rapid and complete presentation thus, in retrospect, makes clear by analogy the structure of the original unfolding. Once the new collection is established on the foreground, two very explicit nonstructural neighbor-note motions appear: D# resolves to D and G# resolves to A. Both of these motions are accompanied by foreground expressive marks. See Example 3-8.

Example 3-8. *Op. 15* no. 1, mm. 11-12.



What is significant about these motions is that they alter the dyadic relationship between structural and nonstructural pitches which had been established in the first ten measures. (In the first phrase G# resolved to

G, and Eb resolved to E.) The voice leading which proceeds from the structural B-C-E in the left hand of measure 12 and that which fills the space between the structural D and B of the right hand (the downward arpeggio to the second eighth note of measure 13) is less clear. The former involves chromatic voice leading in contrary motion. The space from E to G is filled chromatically, F and F# are nonstructural; Db in the middle voice is nonstructural; in the lower voice, Bb is nonstructural, A is structural and G# is nonstructural. This view is influenced by the previous emphasis of B-E-A-D-G-C as an unembellished structural collection in the immediately preceding measures. (See Example 3-9.)

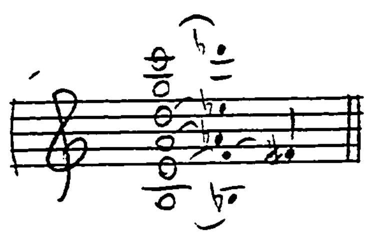
Example 3-9. *Op. 15* no. 1, m. 12.

The most audible feature of the *flüchtig* downward arpeggio is that it fills in the space between two structural tones, D and B. Closer examination also shows that E, F, and F# are grouped registrally, reflecting the chromatic motion from E in the left hand.

Example 3-10. *Op. 15* no. 1, mm. 12-13.

The relationship between the structural and nonstructural collections in this concentrated presentation of all twelve pitch classes is summarized as follows:

Example 3-11. *Op. 15* no. 1, mm. 9-13.



As such, all of the neighbor-tone relationships have changed (with the exception of B-Bb -- cf. Example 3-5 and 3-11). Weinberg has asserted that this already represents a type of serialization. The fixed dyads (made up in each case of a structural pitch and its semitone neighbor) are an instance of what Babbitt calls 'partial ordering' or 'partitioning' of the chromatic set. Conversely the division into a structural hexachordal and its semitone transposition adumbrates the hexachordal partitioning of the twelve-tone music, except that the semitone transposition produces only eleven notes.

What this means is that Schoenberg has done more than merely establish a distinction between structural and nonstructural pitch material on the foreground level. The different neighbor-tone relations of the first (Example 3-5) and second collections (Example 3-11) indicate that the aspect of partial ordering, in addition to pitch content, is used to distinguish one harmonic area from another at the middleground. Though this is a far more sophisticated view of the first thirteen measures, it merely confirms the original intuitive response outlined in Example 3-2.

Among the long range distinctions created by the reorganization of the dyads, the neighbor-tone of the neighbor-tone relationship plays a special role. It is C which occupies this role in the first collection, and F# which occupies it in the second (see * in Example 3-5 and 3-11). Furthermore, the inclusion of F# in the first collection and C in the second distinguishes the pitch content of the two structural collections. In the unfolding of the first collection C plays a very small role. Though all twelve pitch classes are accounted for, Schoenberg is able to keep this one pitch "in reserve" on the foreground. The prominent use of C in the second structural collection (ten statements in four octaves in measures 10-13) is thus consistent with Schoenberg's idea that strong root progressions (in tonal music) are those which provide a new note in the new harmony.[27] Here the pitch held in reserve provides an analogous function within a posttonal context. As such, relative pitch content is coordinated with the dyadic ordering and the third level (the

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[27]Schoenberg, *Harmony*, 116-117.

neighbor-tone of the neighbor-tone) at the middleground level to provide a hierarchy of harmony in which all twelve tones are integrated on the foreground, though they are clearly *not* of equal structural weight.[28]

The unique role of the neighbor-tone of the neighbor-tone is here used in such a way that the pitch held in reserve (C) on the foreground of the first period is thrust into a deeper level of structure by articulating the middleground harmonic movement. The same effect occurs in the last third of the piece, this time with F#. In measures 17-18, there is not a single occurrence of F#, which is held in reserve until the return of the opening motive in the bass register (measure 19). In *Op. 15* the treatment of first C and then F# allows those pitches to differentiate one collection from the other. In this way, the progression between two collections differentiated in content by only a single pitch ($C5_{6\text{-}7}$ and $C5_{11\text{-}0}$) takes full advantage of this difference.

Following the downward piano arpeggio in measure 13, the whole-step movement outlining a tritone in the deepest bass register with which the discussion began points to the reduction of the middleground harmony at this point to the whole-tone collection on C# ($C2_1$). The soprano, though not exclusively whole-tone in content, confirms this.

[28]Weinberg finds that a slightly different version of this hierarchical relationship persists through Schoenberg's twelve-tone music. In the twelve-tone music, the tritone transposition is more often used and fixed neighbor-tone relations exist between the trichords of the prime and inverted forms of the set. The neighbor-tone relations are thus revealed only at a deeper level of structure than is in evidence in the earlier music.

Example 3-12. *Op. 15* no. 1, m. 13.

Eb, the only pitch of $C2_1$ missing from the voice part, is the goal of the stepwise bass unfolding. The ultimate interpretation of the various pitches in between the voice part and the bass voice seems to still depend on the voice leading of those two outer parts. The whole-tone collection is interpreted as a prolonging device which proceeds between two chords constructed in fourths (i.e. B-E-A-D-G-C as expressed in measures 10-13 and again in measure 17). This progression is specifically outlined, though schematically, in the *Theory of Harmony* as part of example 337b, reproduced as Example 3-13.

Example 3-13. Schoenberg, *Theory of Harmony*, Ex. 337b, p. 406.

This example indicates a motion from $C5_{11\text{-}0}$ to $C2_0$ by keeping three pitches in common (E-D-C) and moving the remaining three pitches by semitone. The motion in measure 13 is similarly generated by the displacement of three of the structural tones to their fixed neighbor-tones.

Example 3-14. *Op. 15* no. 1, mm. 9-15.

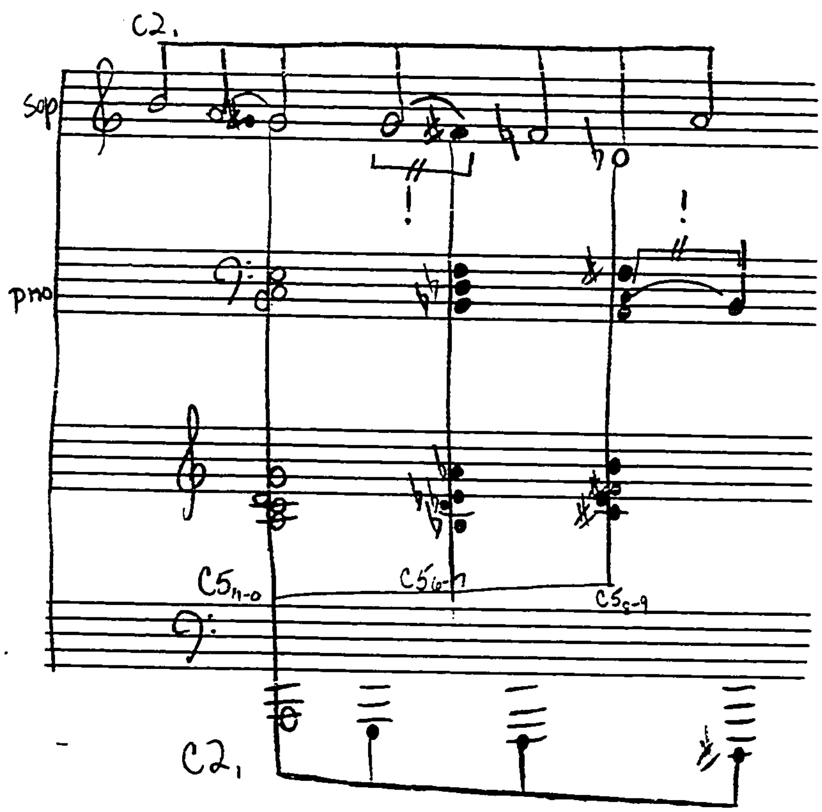
The greater foreground emphasis on C#, F-natural (in the voice part) and D# (in the bass), rather than C, E and D, indicates this shift: G, A and B are common to both unfoldings. Especially the repetition of the chromatic elaboration of B-C-E (in the right hand, measure 13) indicates that the neighbor-tone relationships established in measures 11-12 remain unchanged in measure 13, despite the whole-tone sound of the outer voices. The whole-tone interpretation of the passage indicates an interchange of emphasis within dyadic pairs rather than the redefinition of the dyadic pairs, such as occurred between the unfolding of $C5_{6\text{-}7}$ and $C5_{11\text{-}0}$ (cf. Ex. 3-5 and 3-11). This provides Schoenberg a second harmonic function within the same transpositional level. The two whole-tone unfoldings operate within the orbit of the dyadic ordering which accompanies $C5_{11\text{-}0}$.

The individual components of measure 13 can be summarized as follows: In the lowest voice, $C5_{11\text{-}0}$ is represented by G-C-D-A which is then transposed down in successive whole-steps resulting in what is heard as a predominantly whole-tone unfolding ($C2_1$); B-C-E represents $C5_{11\text{-}0}$ in the next highest voice (separated texturally through the use of a *legato* slur) and repeats the contrapuntal voice leading of the left hand of measure 12, an octave lower. (It will also prove significant that this part begins with a single "B".) A-D-C-G further expresses the $C5_{11\text{-}0}$ collection in the upper register as the left hand of the piano crosses over the right. This "chord" is transposed first by semitone, then by minor third in contrary motion to the whole-tone unfolding in the lowest bass register. Even the first four notes of the soprano part (B-A-G#-G) emphasize B-A-G as part of $C5_{11\text{-}0}$.

In all cases, however, this collection is only the point of departure for a complex of foreground motions which are heard most convincingly tied to the whole-tone unfolding in the bass (A-G-F-D#) and soprano (see voice leading graph in Example 3-12).

What is perhaps mo:- striking about this passage is the way in which all of these different motions intersect. Each of the three "chords" of the contrapuntal motion from B-C-E in the "middle-lower" voice is "harmonized" as a segment of $C5_{11\text{-}0}$, $C5_{5\text{-}6}$, and $C5_{8\text{-}9}$, respectively. This is in spite of the fact that the left hand figure uses a different interval of transposition in each of its two distinct registers. Furthermore, the top voice (the soprano) intersects these harmonies with a suspension (G resolving to the structural F#): and C, though consonant on a deeper level, is a dissonant inner voice suspension within $C5_{8-9}$ which resolves to B (see "!" in graph). The pitch content of these two contrapuntal motions thus summarize the two structural collections (F#-G, $C5_{6-7}$; and B-C, $C5_{11-0}$). The way in which the vertical and horizontal dimensions of this passage are integrated is on a par with the most sophisticated tonal procedures. If Schoenberg, in fact, stumbled upon this intuitively, the effect is no less impressive. See Example 3-15.

Example 3-15. *Op. 15* no. 1, m. 13.

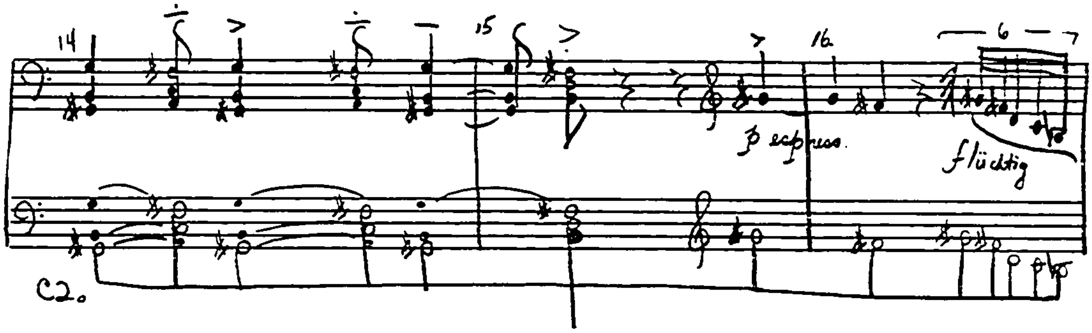


The soprano in measure 14 moves away from $C2_1$ to the other whole-tone collection. This motion is extended through measure 16.

Example 3-16. *Op. 15* no. 1, mm. 14-16 (voice part).

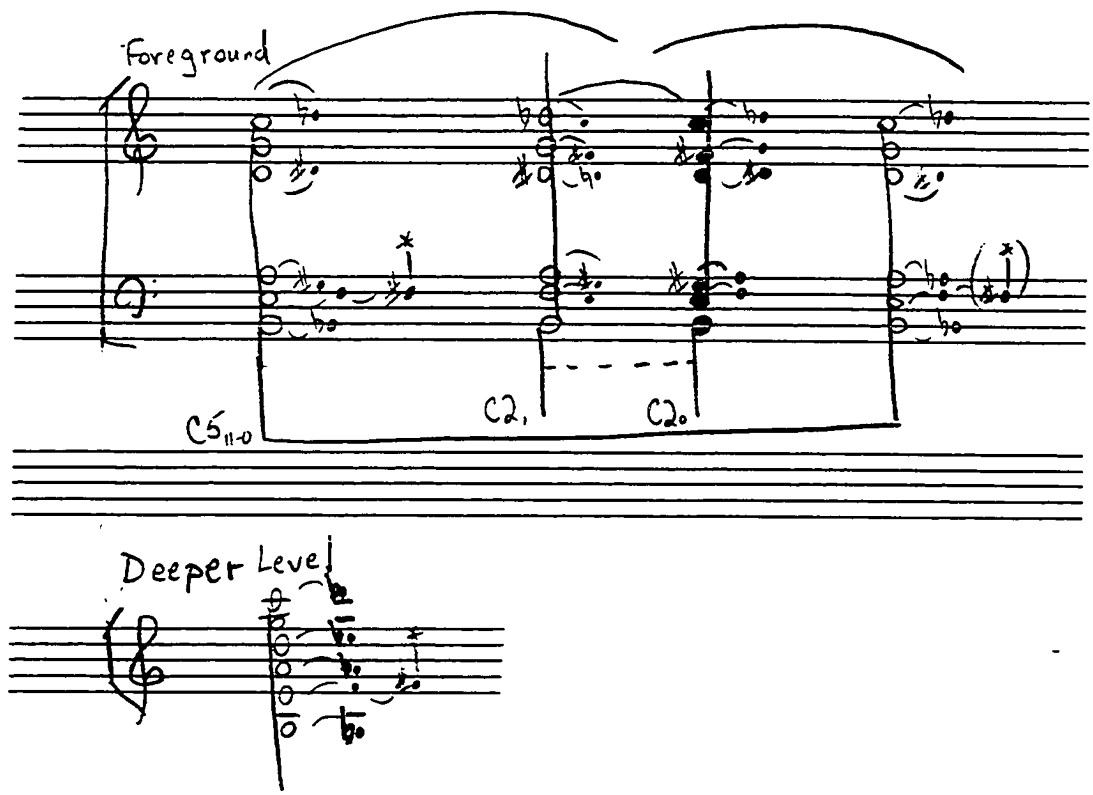
The foreground voice leading of the soprano part indicates the neighbor-tones shown in the second part of the example. Comparing this with the neighbor-tones shown in example 3-14 reveals that while the foreground emphasis has shifted from one whole-tone collection to the other, the neighbor-tone relations have remained the same. The reduction of the piano part of these measures shows the same neighbor tones.

Example 3-17. *Op. 15* no. 1, (piano).



G#, which is absent in the voice part, is especially prominent in the piano part, completing the whole-tone collection. Of particular interest here is the B-natural in the bass in measure 15. This is the same B which so strongly indicated the B-C collection in measure 13. Its reappearance here leads to the conclusion that the two whole-tone collections are part of an elaborate dissonant voice-leading with B as a "pedal." Its presence together with the second whole-tone collection ($C2_0$) clarifies the subordination of that collection to the first whole-tone collection, which is in turn subordinate to the B-C fourth collection. The following example summarizes the foreground harmony along with the neighbor-tone relationship. What is especially extraordinary about this passage is that while $C5_{11\text{-}0}$ and the whole-tone collections are distinguished on the foreground, the neighbor-tone relationships which prolong these unfoldings remain unchanged at a deeper level.

Example 3-18. *Op. 15* no. 1, mm. 9-17.

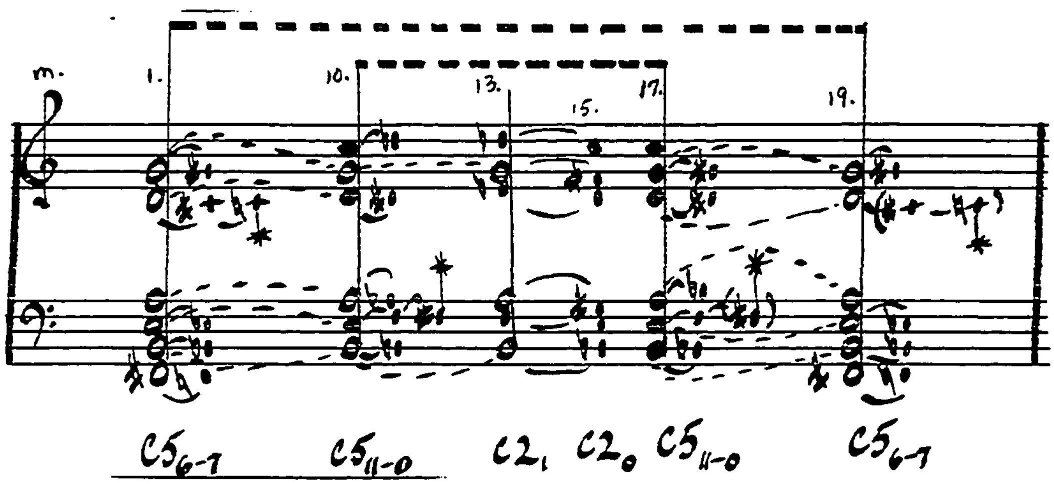


This hierarchical order is confirmed by the unmistakable reiteration of the B-C collection in measures 17-19. Five of the six tones of the subordinate whole-tone collection comprise the *fluchtig* run in measure 16, which is immediately resolved to A-C-D-G in the left hand and followed by the return of B-C-E in the right hand which completes the B-C collection. D# and E then appear as a simultaneity in the same register in a manner analogous to that of measures 9-10. G# and E# appear in both the voice part and the piano part in several octaves in anticipation of the return of the F#-G collection which is signalled by the motivic return of F#-D-F in the bass register at measure 19. This special registral treatment is a strong sonic reminder of the opening cadence. The "unresolved" G# and E# so prominent in measures 17-20 are repeated in a manner which recalls the very opening of the song. Schoenberg denies the expected resolution of G# to G and E# to F#, though, and projects the F-natural into the next song where it becomes a structural tone of the opening whole-tone unfolding. The final measures of this song could be given a more conclusive cadence with the following recomposition:

Example 3-19. *Op. 15* no. 1, 20-23, recomposition.

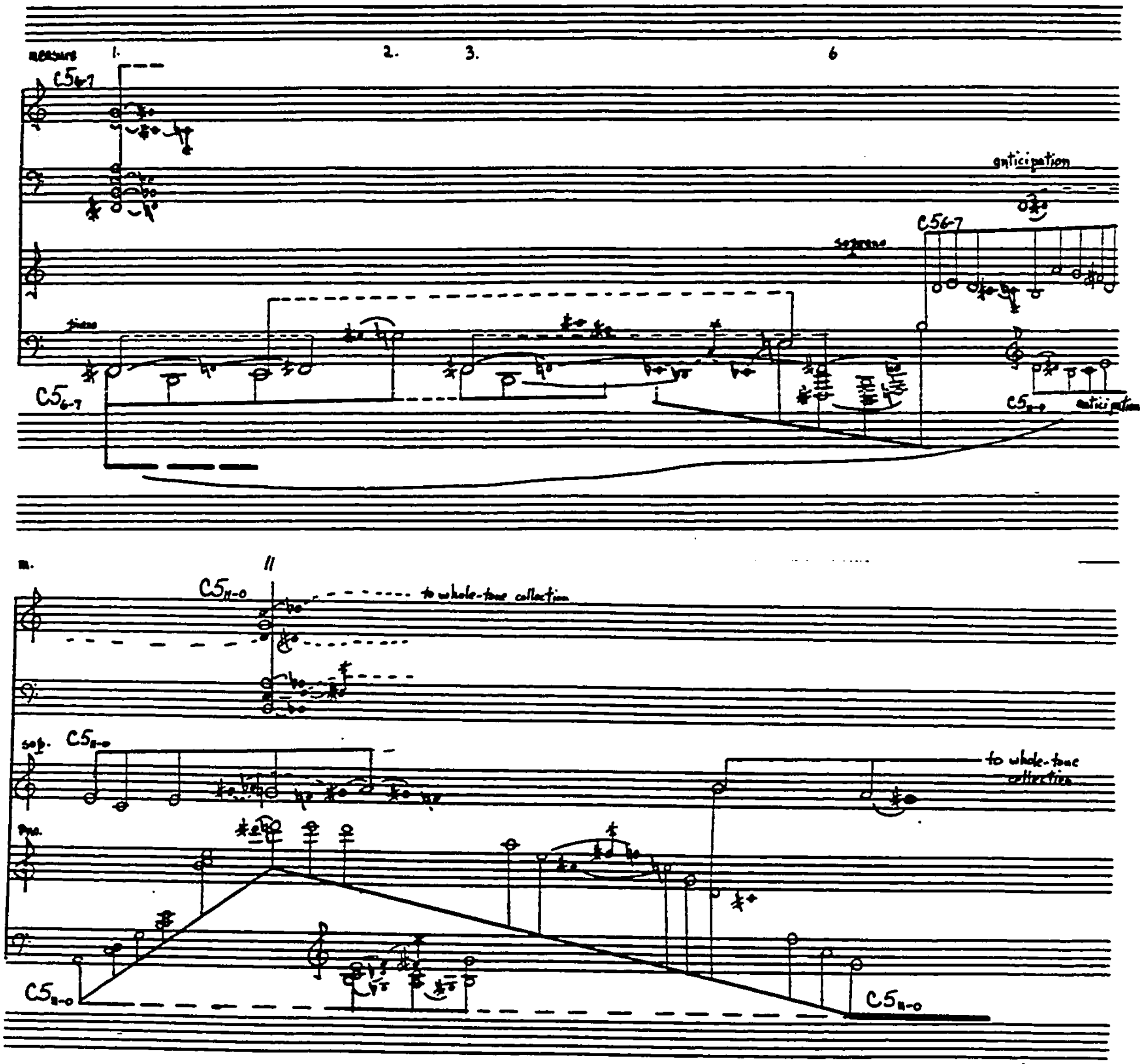
In the recomposition, all of the nonstructural pitches resolve to their implied structural tones. While this allows for a neater analysis, it sacrifices the mystery of the incomplete cadence provided by Schoenberg. The lack of definitive harmonic closure in this song in particular and this music in general is viewed as an aesthetic posture the precise nature of which is beyond the scope of the present discussion. The sense that many pieces of Schoenberg and other composers of this era lack a strong final cadence is an integral part of the expressionist aesthetic. Often, one finds that the "final cadence" comes several measures before the final. The analytical method applied here reinforces that view. The return of F# in measure 19 provides an audible and unmistakable sense of closure to the song as a whole, but the final measures leave certain elements unresolved. The strongest feeling of harmonic closure thus occurs in the penultimate rather than the final measures. In the analysis of such examples, where "final" contrapuntal motions relate back to a previous pitch they will be connected with a solid slur; where they imply a resolution to a pitch not heard within a reasonable proximity, the resolution will be shown by a notehead in parenthesis. In certain cases, particularly in multi-movement works, resolutions may occur from one movement to the next. The long range voice leading of the first song is extracted from the larger graph and shown as Example 3-20.

Example 3-20. *Op. 15* no. 1, Deepest Structural Level.

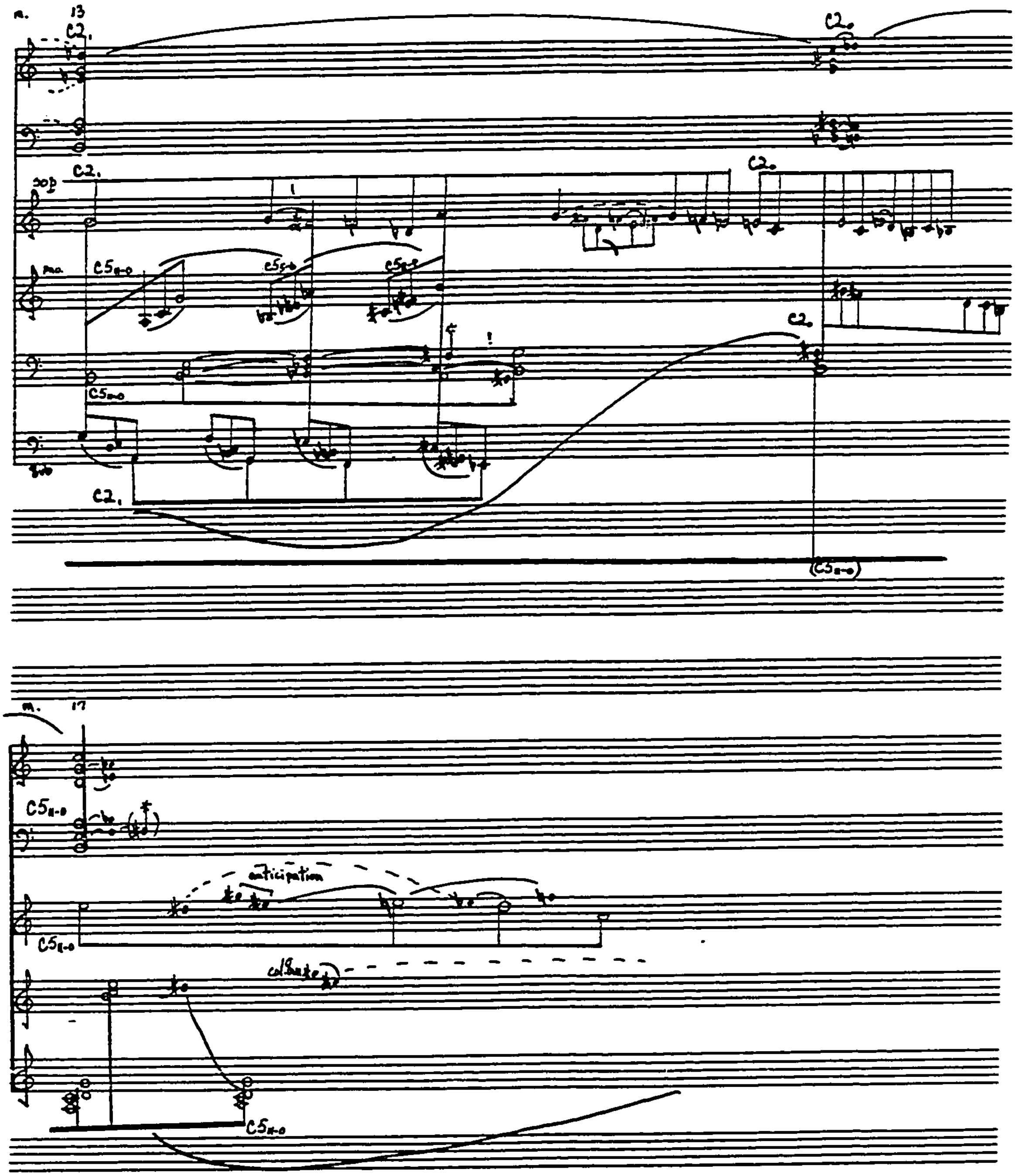


The motion from $C5_{6-7}$ to $C5_{11-0}$ involves a shift in 5 of the 6 dyadic pairs. The motion from $C5_{11-0}$ to first the one and then the other whole-tone collection ($C2_1$ followed by $C2_0$) involves no such partial reordering. This distinguishes the whole-tone unfolding as a function of the B-C collection, just as combinatoriality makes the inversion of the row a function of a given prime. The pitch relationships at the deepest level are shown abstractly. For the actual register at which the various voice leading events occur, compare Example 3-20 with Example 3-21. Whether the findings of this graph actually constitute a genuine background may remain an open question. This does not, however, invalidate the rapport between the levels represented.

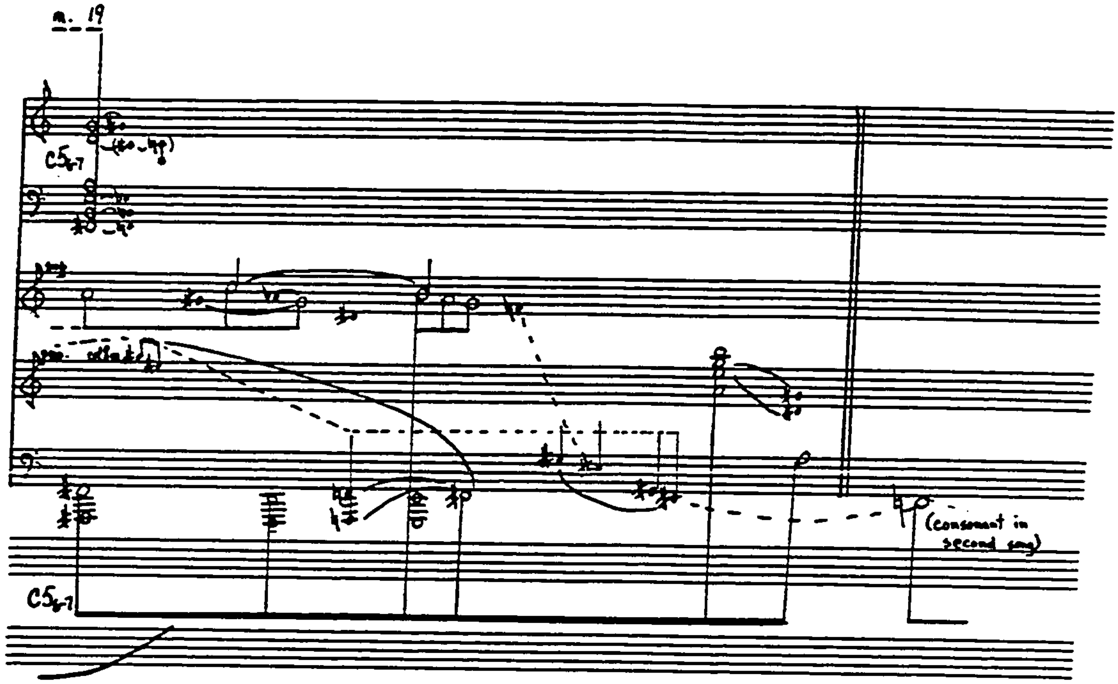
Example 3-21. Schoenberg, *Op. 15* no. 1.



Example 3-21, (continued). Schoenberg, *Op. 15* no. 1.



Example 3-21, (continued). Schoenberg, *Op. 15* no. 1.



CHAPTER FOUR

ANALYSIS OF SCHOENBERG'S

SIX LITTLE PIANO PIECES, OP. 19

As in the analysis of *Op. 15*, the structural collection is identified as the deeper level unfolding of the individual lines. In addition, the criteria for the differentiation of primary and secondary harmonic materials will consider certain factors concerning posttonal music which have been observed by Schoenberg himself. "The chord progression seems to be regulated by the tendency to include in the second chord tones that were missing in the first, generally a half-step higher or lower. Nevertheless the voices seldom move by half-step."[29] The first part of this statement indicates the desire to complete the presentation of twelve tones was a motivating feature of chord progression at a very early stage, and further establishes the semitone as the interval of progression. The statement that "the voices seldom move by half-step" (this point is more true theoretically than in reality) indicates that the idea of progression and harmony does not operate on a chord-to-chord basis, but is the middleground result of a systematic juxtaposition of pitch material.

[29]Schoenberg, *Harmony*, 420.

OPUS 19 NO. 3

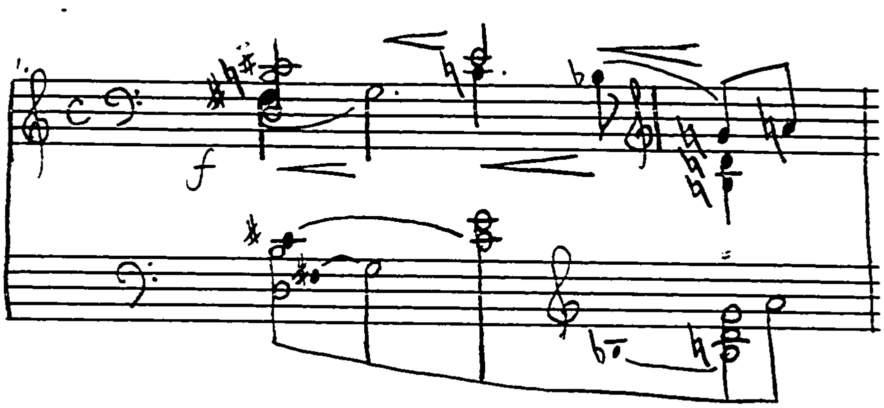
In order to most clearly demonstrate an analysis which proceeds from the perception of the music in real time, I have chosen to start with the most texturally and procedurally straightforward piece. This will only be temporarily at odds with the actual perception of the complete opus in performance: after all six pieces have been discussed, their perceptual effect *in order* will be considered.

One unusual feature of No. 3 is the specific instruction to the pianist to separate the left and right hands dynamically. For the first four measures, the right hand is to play *forte* while the left hand plays *piano*. Given this instruction as well as the fact that each occupies a distinct register, it seems reasonable to consider the effect of each hand individually before considering their effect together. Beginning with the left hand figure, one is immediately struck by the stable effect which octaves in the low register seem forever destined to provide. The repetition of pitches and (with the exception of E-natural in mm. 3 and 4) lack of chromatic inflection in this tune leads to its consideration as an unfolding of the structural pitches Bb-Eb-F-Ab-C-Db. The E-natural represents first a passing tone between F and Eb (m. 3) and then a back-relating displacement of Eb (m. 4). The left hand of measures 1-4, like the Debussy example of Chapter 1, thus presents a "diatonic scale" as a harmonic collection. Arranging the structural pitches according to their interval of generation shows the structural collection C-F-Bb-Eb-Ab-Db or $C5_{0-1}$.

Example 4-1. Schoenberg, *Op. 19* no. 3, mm. 1-4.

The unfolding in the right hand is more complex. Here are a greater number of voices, and, consequently, a more involved voice leading. Among the clues to understanding the voice leading of the first two measures are the carefully placed *crescendo* marks. These indications highlight F# and G; C# and C-natural; and Bb and B-natural as registrally discrete semitone motions. The prominence of "white notes" in the right hand, (especially in contrast to the "black notes" of the left) thus initially leads to the interpretation of these semitone motions as a series of appoggiaturas.

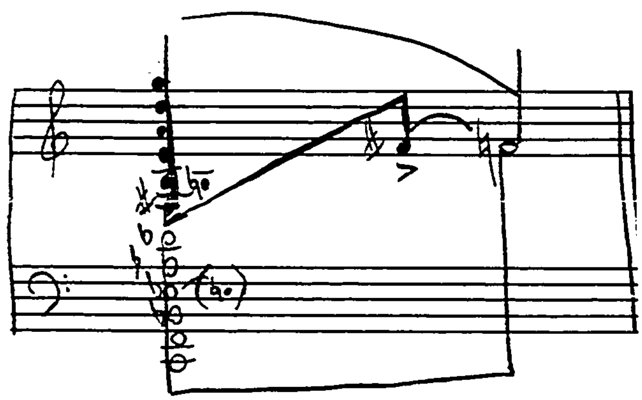
Example 4-2. *Op. 19* no. 3 (reduction of right hand, mm. 1-2)



Looking to the end of the phrase, there is a slur which suggests F, in the top voice at the end of each of the first two phrases, as a goal of motion. F# to F-natural in measure 2, furthermore, gives the distinct impression of an appoggiatura. F-natural is also a pitch which is a) not present in the right hand anywhere else, and b) very prominent (and interpreted as structural) in the left hand. The distinction between the "white note" unfolding of the right hand and the "black note" unfolding of the left thus has a point of intersection with the F-natural at the end of measure 2, and again at the end of measure 4. Because the sound of the octaves is so strong, the unfolding in the lower register is considered primary. As such, F at the end of these two phrases "resolves" the right hand unfolding to the more structural unfolding in the bass register.

The role of F as a point of intersection is also emphasized by its placement as the highest tone in the left hand melody, on the first beat of measure 3, while there is a rest in the right hand, with a *tenuto* mark, one beat after the F in the right hand. The semitone motions of the right hand, measure 1, are now viewed in a new light. Based on the interpretation of the lower octave melody as $C5_{0-1}$, C-C# (in the right hand) is now interpreted as structural support in the inner voices. G and F# are interpreted as a structural tones of the prolonging hexachord F#-B-E-A-D-G ($C5_{6-7}$).

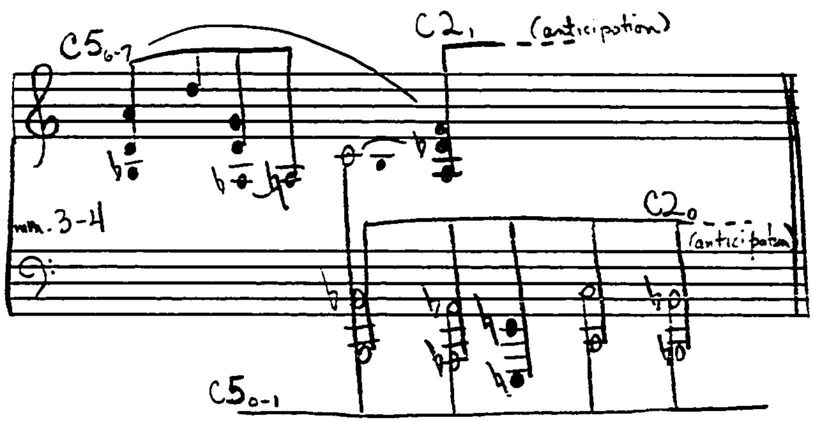
Example 4-3. *Op. 19* no. 3, reduction mm. 1-2.



When both hands are played together, the effect is one in which the low register unfolding of $C5_{0-1}$ is prolonged by the more contrapuntally elaborated unfolding of $C5_{6-7}$. F-natural (especially through its emphasis as a foreground goal of motion) provides a structural point of intersection for the two hexachords. There is thus a coordination of gesture through the interaction of harmonic material which belies the dynamic separation of the two hands.

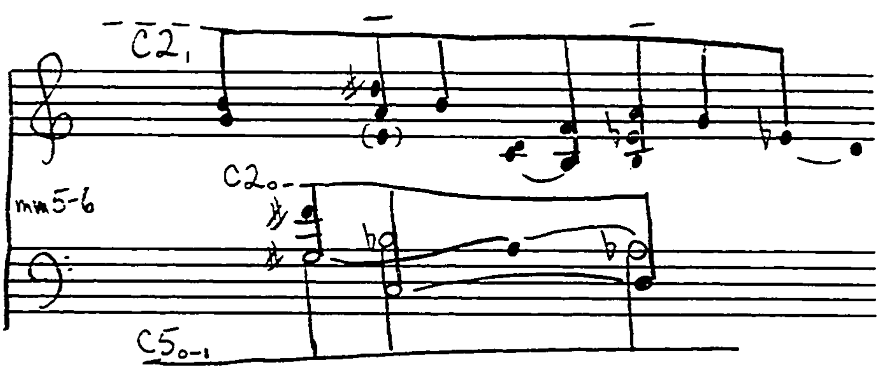
In measure 3-4 the prolonging hexachord ($C5_{6-7}$) again provides the harmonic frame for the right hand, F-natural is again the pitch toward which the top voice motion is directed, and an additional dyadic pair (Ab-A) is asserted on the foreground. The foreground resolution of Ab to A is indicated by Schoenberg's placement of the *forte* marking, which also clarifies the inner voice pairing of A and Ab in the right hand of measure 2. The registrally isolated augmented triad of measure 4 indicates that F-natural is now supported by a foreground whole-tone harmony. The bass (still in octaves) through the displacement of Eb to E-natural hints at the other whole-tone collection. As such, measure 4 comes to a close with the two hands still separated in function, each indicating one of the whole-tone collections. The double stemming of the ower voice unfolding indicates the function of C5$_{0-1}$ as the hexachord to which these whole-tone unfoldings will eventually resolve.

Example 4-4. *Op. 19* no. 3, reduction mm. 3-4.



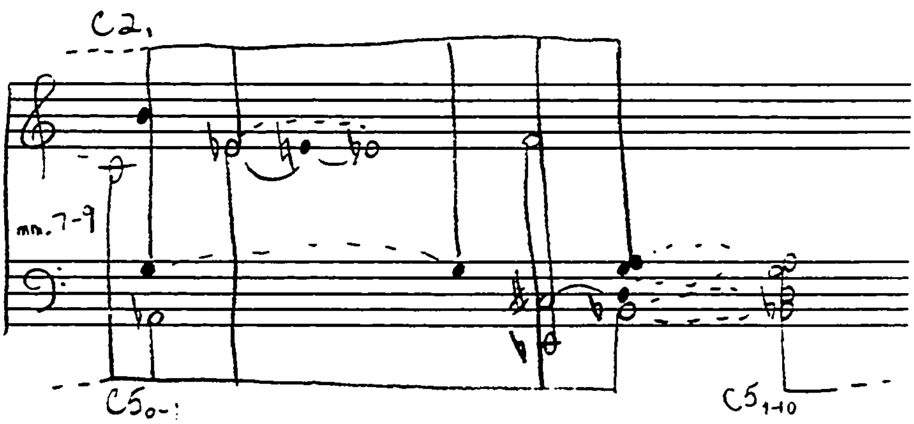
The juxtaposition of the two whole-tone collections in measure 4 is confirmed by the voice leading of measures 5-6. The auspicious return of G-B (isolated in this register it makes a strong aural connection with the memory of r in performance) serves as the starting point for the unfolding of C2$_1$ in the upper voices. Specifically, the *tenuto* marks on D# and A, and the presence of B, F and G in the soprano point to this and influence the interpretation of the inner voices. The left hand unfolds the other whole-tone collection ($C2_0$); the C# and A on the fourth beat of measure 5 form passing tones in contrary motion between the structural pitches. The whole-tone unfolding in the left hand is secondary to the deeper level function of the bass line, which still refers to the long range unfolding of $C5_{0-1}$.

Example 4-5. *Op. 19* no. 3, reduction mm. 5-6.



Measures 5-6 present a reworking of the material of measures 1-4. The rhythmic design and melodic contour of the bass voice in measure 5 especially recall the left hand of the first measure. The juxtaposition of C-C# (now in the lowest voice and emphasized by the dynamic marking) provides a sonic reminder of those pitches (cf. - m. 1; m. 2 --twice!--; mm. 3-4) which leads to their interpretations as structural at the deepest level despite the apparent function of C# as passing. The appearance of D-natural in the right hand at this moment indicates C#-D as a dyadic pair and leads to the deeper level interpretation of the D which follows (in the bass) as nonstructural. The first period (mm. 1-4) ends with a foreground motion to a harmony which is then extended in the next measures. Measure 6, in contrast, ends with a pitch which is a back-relating displacement of Eb as part of the a whole-tone unfolding of the right hand. The D is not part of either the structural collection or the prolonging whole-tone collection of the right hand. The very unstable character of the "cadence" at measure 6 is thus accounted for in the voice leading. The final phrase (especially the lowest voice which unfolds Ab-Eb-Bb) punctuates the original unfolding of the bass register and thus provides a sense of harmonic return. The incomplete statement of $C5_{0-1}$ is not surprising. It would be uncharacteristic of Schoenberg to provide a complete and literal repetition of the octave unfolding of the opening measures. Each of the pitches of the $C5_{0-1}$ hexachord are, however, emphasized in turn, (though not all in the bass register, and none are doubled in octaves). The top voice, though, continues to outline a whole-tone harmony.

Example 4-6. *Op. 19* no. 3, reduction mm. 7-9.



The registral separation of these two unfoldings provides a texture similar to the opening four measures, the final "Eb-Bb" in the bass register provides a direct reference to the opening pitches of the bass unfolding. The final "chord" completes the $C5_{0-1}$ with Bb in the lowest voice; reiterates D-natural as the neighbor-tone to Db; and adds A as consonant support to G (as part of the whole-tone upper voice unfolding). This final chord has additional long range significance in that it supplies 4 of the 6 structural tones of $C5_{9-10}$ which will be the structural collection of the next piece (see Example 4-6).

The large scale graph which follows (Example 4-7) clarifies additional voice leading details, and identifies the fixed neighbor-tone relationships between the primary $C5_{0-1}$ collection and the prolonging collections. This relationship (summarized in the upper staff) does not account for *every* foreground semitone motion, but offers an interpretation of what are viewed as the more important relationships. In all of the analyses which follow, the fixed neighbor-tone aspect will be briefly summarized in this way.

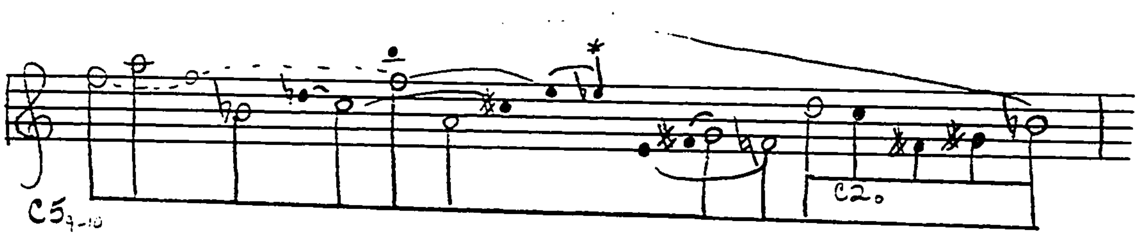
What is perhaps most significant about this graph is the way it differs from the large graph of *Op. 15* no. 1. The most obvious difference has to do with the way *Op. 19* seems to involve more than one unfolding at a time. The prolonging collections are heard together with the structural unfoldings, though each is separated by register. There is never a complete motion away from the original collection in the manner of *Op. 15* no. 1. $C5_{0-1}$ is always present at a level near the foreground level, simultaneously with the nonstructural unfoldings. This offers a clue to what Schoenberg might have intended when he refers to the "concentration" of elements in this style. Where *Op. 15* no.1 has a series of discrete unfoldings heard in horizontal relation to one another, *Op. 19* no. 3 concentrates the presentation of these harmonic relationships by using register (rather than time) to distinguish one from the other.

Example 4-7. Schoenberg, *Op. 19* no. 3, reduction.

OPUS 19 NO. 4

Where the final chord of No. 3 hinted at $C5_{9-10}$, the opening monophonic tune of No. 4 makes this unfolding explicit. F-A-Bb and C are unfolded in the first two measures (Db is a nonstructural tone which resolves to C). The structural F which begins the piece is repeated twice more before being displaced by E and D# in measure 3. In the third measure E and F# resolve to F and G, respectively. When D (the tone which completes the structural collection) is achieved, there is a brief foreground whole-tone unfolding which "resolves" with the repetition of Bb (written A#) here acting as an important goal of motion and the long range resolution of the nonstructural B-natural in measure 2.

Example 4-8. Schoenberg *Op. 19* no. 4, reduction mm. 1-4.

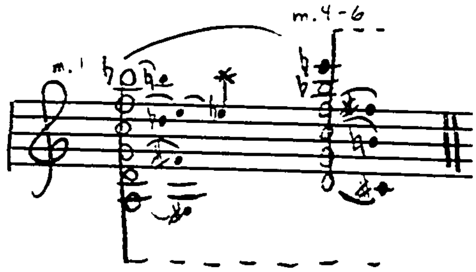


At the moment that this A# arrives, Schoenberg introduces the bass register and a texture which sharply contrasts with the monophonic tune of the first measures. With the exception of the B-natural, the pitches of this arpeggiated chord (blurred by the pedal to sound as a single harmony) are D-G-C-F-Bb-Eb. The sudden arpeggiation of an entire structural collection here is exactly analogous to the middleground motion of the first period (mm. 1-10) of *Op. 15* no. 1, though the presentation here is more concentrated. In *Op. 19* no. 4, the melodic B-C which follows (m. 5) clarifies the meaning of B (in m. 4) as a nonstructural tone which resolves to C.

Example 4-9. Schoenberg
Op. 15 no. 1, voice leading summary, mm. 1-10.
Op. 19 no. 4, voice leading summary, mm. 1-4.

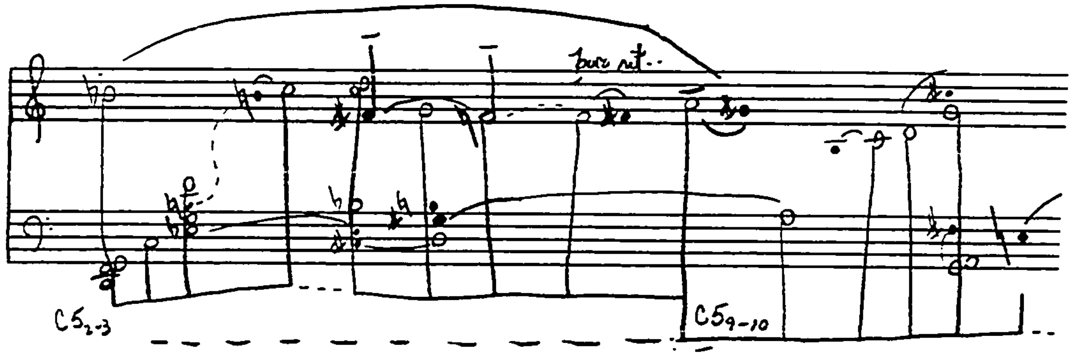
The reader will recall that one of the important aspects of the voice leading of *Op. 15* no. 1 which signalled a change in the middleground harmony was the change in neighbor-tone relationships between the structural and nonstructural collections. The one nonstructural tone presented with the D-G-C-F-Bb-Eb chord in measure 4 of *Op. 19* no. 4, is B-natural. Its function as a neighbor-tone to C is made explicit in measure 5 (*leicht*). The following phrase (mm. 6-9) contains other new foreground semitone motions which indicate further changes in the neighbor-tone relationships. These redefined neighbor-tone relationships supply additional evidence to confirm $C5_{2-3}$ as a middleground harmonic goal. The two most audible semitones which provide this additional evidence are C#-D in the lowest voice and F#-F (emphasized dynamically and through articulation) in the middle voice.

Example 4-10. *Op. 19* no. 4, voice leading summary, mm. 1-6.



The reader will further recall that in *Op. 15* no. 1 Schoenberg also articulated middleground harmonic motions through contrast in the relative content of the structural collections. A-natural (a prominent pitch in the first measures and the pitch from the first structural collection which is "replaced" with Eb in the second structural collection) is conspicuously absent from measures 4-6: all other 11 pitch classes are represented here. The *poco rit., crescendo, tenuto* mark on A in measure 7, and the repetition of A immediately in a lower octave all serve to highlight the return of that pitch, which signals the middleground return of the original collection. The phrase ends with a nonstructural tone (similar to the penultimate phrase in *Op. 19* no. 3).

Example 4-11. *Op. 19* no. 4, reduction mm. 4-9.

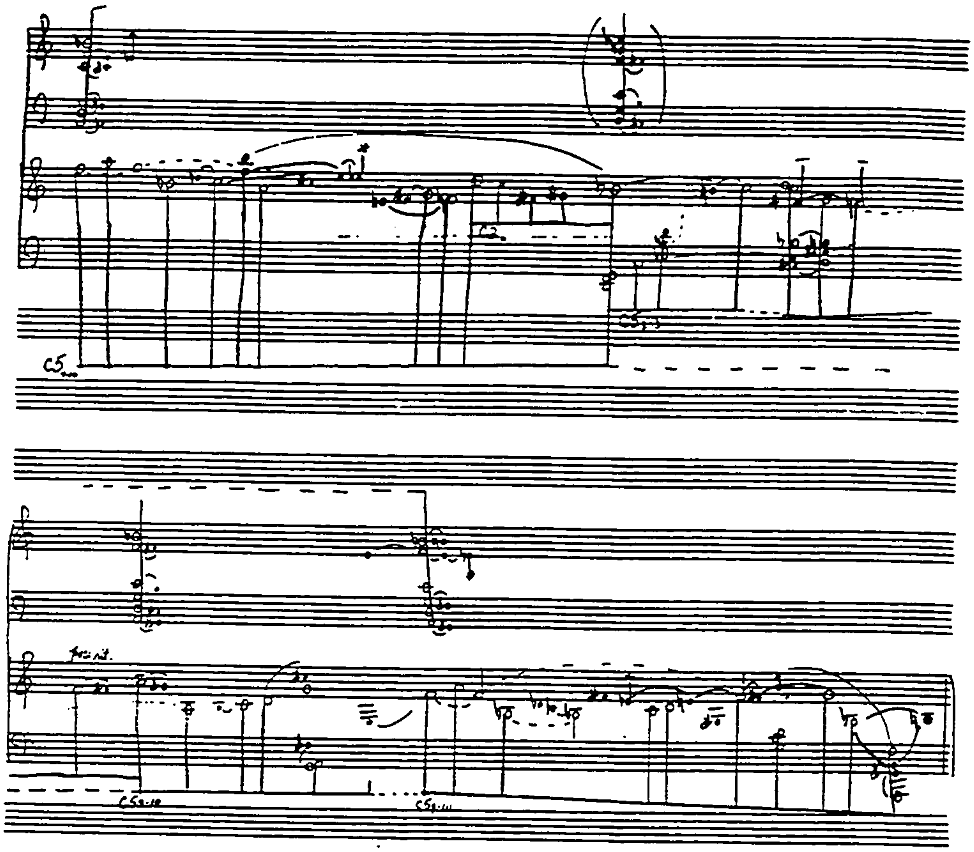


The E-natural which ends the penultimate phrase (m.9) resolves in the final phrase to F (m. 10) though the resolution is transferred to another octave. This final phrase recapitulates the opening material both in terms of its motivic shape and the specific collection it unfolds. Here the unfolding of measures 1-3 is condensed into a single measure. B-natural is more clearly asserted as the neighbor-tone to the structural Bb; Db receives a somewhat delayed resolution to C; the other neighbor-tone relations are less clearly represented. The motion from F to F# to G in measures 11-12 is analogous to the top line of measure 4, the rising whole-tones here reinterpreted as half-steps: the particular choice of pitch here reiterates the ambiguity of the role of F# through its foreground treatment as a passing tone between F and G, both of which are clearly structural tones.

The role of the final "chords" is similar to all of the nonmonophonic textures in this piece. The entire piece seems to involve the motivic transformation of a basically homophonic texture. Throughout, there is a basically monophonic tune which is punctuated by additional voices which are placed over (m. 1), under (mm. 4-5 and m. 12), and around (mm. 6, 8, and 11) it. In all cases, these accented embellishing chords involve a combination of structural and nonstructural tones. In all cases, the lowest voices of the added chords provide the structural pitches, and are indicated on the voice leading graph as such. Of particular interest is the final chord which reaches into the deepest bass register to A, the pitch which distinguished the $C5_{9-10}$ unfolding from that of $C5_{2-3}$. It is also interesting to note that the perfect fourth which separates these two collections also separates the final low A from the low D which articulated the motion to $C5_{2-3}$ in measure 4. After such a "consonant" use of the deep bass register, it is not surprising that Schoenberg displaces the final Bb of the top voice to its nonstructural neighbor-tone, B-natural.

The large scale graph summarizes these motions. An interesting feature of the long range harmony of this piece is the fact that, when compared with No. 3, its faster foreground rhythms are accompanied by a correspondingly *slower* rate of harmonic change. This is precisely the kind of relationship between harmonic unfolding and foreground rhythm that occurs regularly in tonal music.

Example 4-12. Schoenberg, *Op. 19* no. 4, reduction.

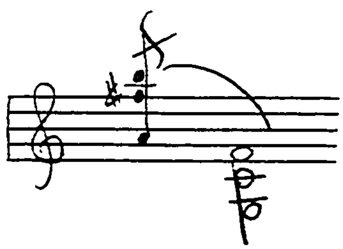


OPUS 19 NO. 6

The most characteristically athematic piece of *Op. 19* is the last. Here the almost arhythmic juxtaposition of chords constitutes the main motive. The chordal nature of this piece provides a texture in which the aspect of harmony imposes itself in a unique way. It is a particularly clear example of the criteria for chord progression already described: "The chord progression seems to be regulated by the tendency to include in the second chord, tones that were missing in the first, generally a half-step higher or lower. Nevertheless the voices seldom move by half-step."[30]

The first two chords of *Op. 19* No. 6 present exactly this situation. At first these two chords seem to occupy mutually exclusive "planes." However, there is an implied semitone relationship between the F#-B of the first chord, and G-C of the second chord. Furthermore, the second chord (G-C-F), by virtue of its fourth structure, has a more stable quality, and gives the impression of resolving the first chord. This does not diminish the "multi-plane" aspect of our perception of the piece, but rather adds a voice leading dimension to that perspective.

Example 4-13. Schoenberg, *Op. 19* no. 6, reduction m. 1.

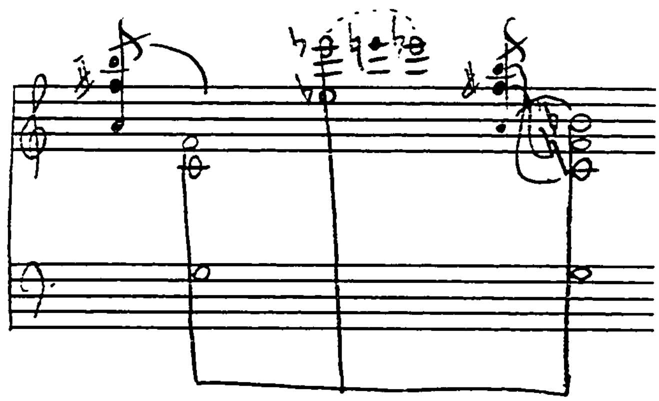


[30]Schoenberg, *Harmony*, 420.

Based on the idea that the semitone is the interval of resolution, B would resolve to C, F# could resolve to either G or F-natural, and A would remain uninflected. The presence of neighbor-tone resolutions of nonstructural tones to structural tones in a different octave here (and elsewhere in this opus) indicate a departure from the voice leading procedure of *Op. 15* no. 1 in which structural and nonstructural semitone voice leading occurred in the same register. A byproduct of the octave separation of this implied semitone voice leading is that nonstructural tones sound together with their structural resolutions, something which does not occur in the earlier opus. The concentration of structural and nonstructural pitch material in this way is similar to the concentration of structural and nonstructural unfoldings demonstrated in the third piece.

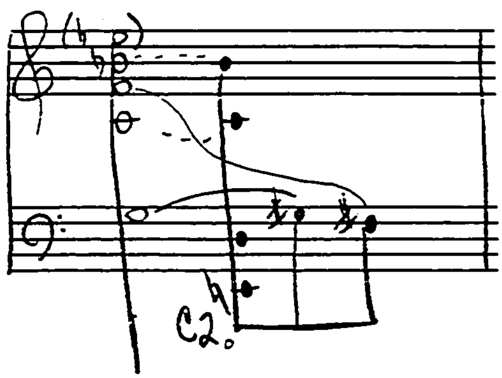
The opening chord progression is repeated in measures 3-4 and a new pitch, D#, is introduced and prolonged by a neighbor-tone E-natural. The opening chord is repeated again (in measure 4) and followed first by G-C-F and then, C-F-Bb. It is the appearance of C-F-Bb which clarifies the voice leading of the initial "progression," and the role of the D#. The intuitive response to D# is one in which D# is structural, and is prolonged by a neighbor-tone E. The appearance of C-F-Bb now reveals D# as part of a gradual unfolding of a fourth collection which so far includes G-C-F-Bb-Eb. The voice leading relationship of the first chord is furthermore made clear as A is now heard resolving to Bb, the B again resolves to C.

Example 4-14. *Op. 19* no. 6, reduction mm. 1-5.



F# resolves to F, (not to G) based on the larger context of the voice leading which follows in measures 5-6. After five pitches of the structural fourth collection have been unfolded (G-C-F-Bb-Eb, mm. 1-5), the harmony changes to a whole tone unfolding ($C2_0$) in measures 5-6. The arrival of the whole-tone harmony coincides with the introduction of the bass register, a technique which Schoenberg has used several times in this opus to articulate a new harmony. The G of the left-hand chord (G-C-F) moves to G#, and the F# which follows in that same voice represents an octave displaced semitone motion from F in the previous right-hand chord.

Example 4-15. *Op. 19* no. 6, mm. 5-6.

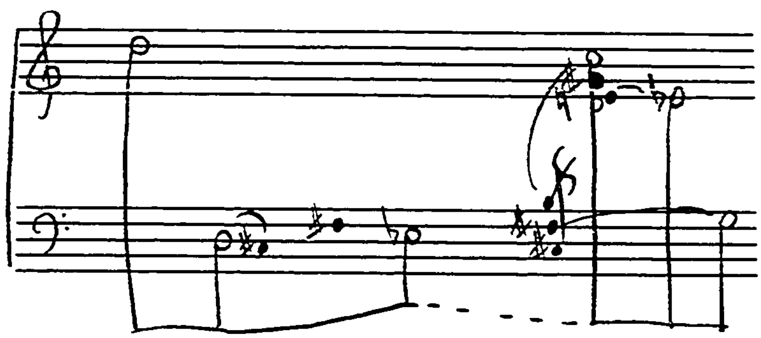


A more "melodic" tune follows (unharmonized) and emphasizes D, doubled across three octaves and embellished by its own neighbor-tone, C#. F# is ambiguously presented without its tone of resolution (in measure 7). The special emphasis of D in this tune implies its addition to the structural collection, which now includes D-G-C-F-Bb-Eb, or C5$_{2\text{-}3}$. In measure 8 the "chordal" element which has predominated this piece returns, but the registrally differentiated "chords" are now struck together, *genau im takt*. This measure represents a development of the earlier chordal motive. There is an implied voice leading relationship between the pitches in the left and right hand chords in measure 8 which is similar to that of the first two chords of the piece. The idea of "progression" from one chord to another, to "tones that were missing in the first, generally a half-step higher or lower," however, is now concentrated into a single simultaneous statement.

In these "chords" F# moves linearly to G (an unexpected motion based on the analysis of the rest of the piece); E-natural is again paired with Eb in the same register; D and C in the right hand together with

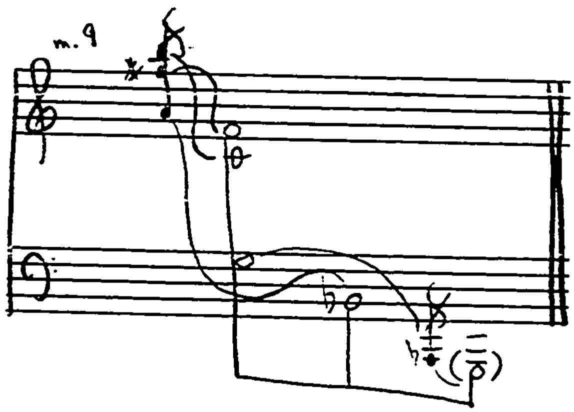
C# and B in the left reiterate the registrally separated neighbor-tone relation which characterized the opening of the piece (i.e., D-C# and C-B are dyadic pairs). In addition to compacting the "progression" motive into a single more complex harmony, however, by placing C#-F#-B in the left hand, Schoenberg also reverses the relative positions of structural and nonstructural material.

Example 4-16. *Op. 19* no. 6, reduction mm. 7-8.



The final measure reiterates the opening progression which "resolves" the texture of measure 8 to the more familiar temporal separation of structural and nonstructural elements. The Bb which appears in the bass expands the structural chord G-C-F by a fourth, in a manner similar to the right hand chord of measure 5. As such, this can be viewed as a highly concentrated "recapitulation" of the voice leading of the opening 5 measures. Ab appears in the deepest register, and is viewed as a nonstructural tone, whose resolution should be to G-natural. This intuitive response can be confirmed by "recomposing" this final measure to include the low G. The final measure thus presents four of the six tones of the structural collection, each with its nonstructural neighbor in a different octave: G-Ab; C-B; F-F#; Bb-A. See example 4-17. The unresolved Ab in the bass here is similar to the unresolved E# in the bass in *Op. 15* no. 1. The large graph which follows (Example 4-18) summarizes the structure of the entire piece.

Example 4-17. *Op. 19* no. 6, reduction m. 9.



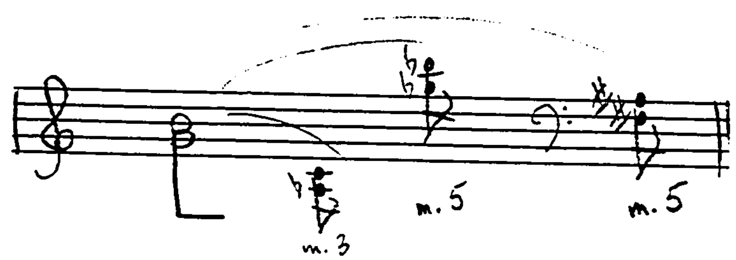
Example 4-18. *Op. 19* no. 6.

OPUS 19 NO. 2

Perhaps the most well-known piece of this collection is the second. The repeated third G-B lends a level of pitch stability to the overall impression of the piece which is unique in this opus. (The ostinato bass figure in Schoenberg's *Op. 11* no. 2, and the "Yesteryears" movement of *Op. 16* are similar examples). Its interpretation as anything but structural is unthinkable. In addition to this more obvious element, the piece seems to divide into three segments, articulated by a directed motion to the third beat of measure 3, the third beat of measure 6 and the final measure. The interpretation of all of the pitch material will ultimately depend on how one hears these "cadential" points.

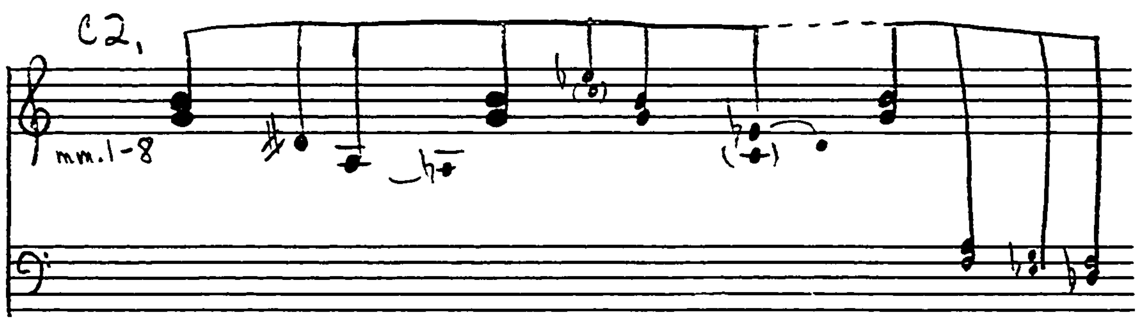
Among the foreground elements one finds along the way, Schoenberg's dictum of following one harmony with pitches a half-step away, but in a different octave, appears to be an operative procedure. Ab and C in measure 3, Gb and Bb (as well as F# and A#) in measure 5 establish a contrapuntal relation to the overriding G-B.

Example 4-19. Schoenberg, *Op. 19* no. 2.



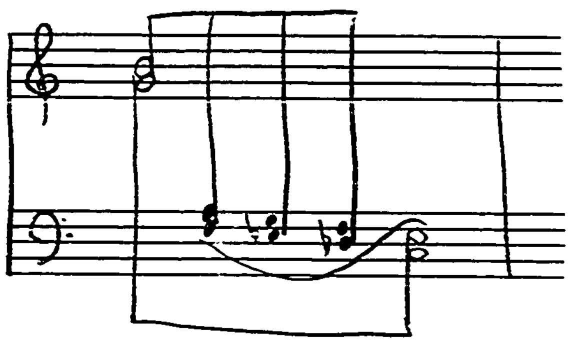
Another very audible aspect of the foreground harmony is the implication of G-B as part of a whole-tone unfolding. The ubiquitous G-B together with D# and A in measure 3; Eb in the highest voice in measures 4, 5, and 6; and especially as part of the progression in measures 7-8, all give a impression of $C2_1$. Where the evidence of whole-tone harmony in measures 1-6 is somewhat sketchy, measures 7-8 provide a clear unfolding of the entire $C2_1$ collection.

Example 4-20. *Op. 19* no. 2, mm. 1-8.



Despite the various whole-tone elements of the first part of this piece (the emphasis of major thirds in general, in addition to those outlined in the Example 4-20) there are many prominent elements which do not reinforce this. The most significant of these occur at the three "cadential" points identified above. Especially the last of these gives the impression of resolving the whole-tone unfolding which precedes it.

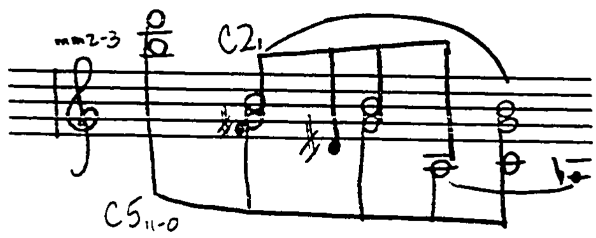
Example 4-21. *Op. 19* no. 2, mm. 7-9.



This interpretation does not change the meaning of the graph in Example 4-20. The whole-tone unfolding, however, is now shown as a harmony which prolongs G-B and C-E as part of the same collection. G-B and C-E, though both major thirds, belong to different whole-tone collections. They do, however, comprise four of the six pitches of the B-E-A-D-G-C fourth collection. The foreground occurrence of four of the six pitches of a given structural collection is viewed as a strong harmonic indicator. This is similar to the effect, in tonal music, of a progression which points toward a given tonality without supplying a complete V-I cadential progression. The other "cadential" points of *Op. 19* no. 2 can be similarly interpreted.

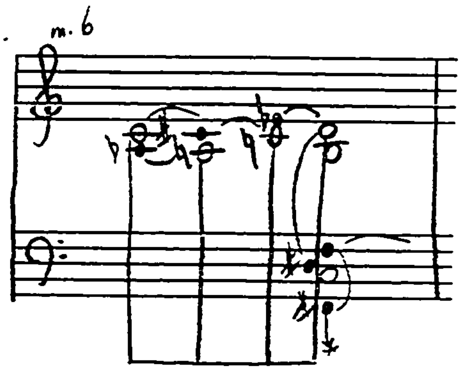
In the first half of measure 3, D#-G-B-A all point to $C2_1$. But this is the middle of the phrase and Schoenberg marks a *crescendo* to the accented third beat where C-G-B sound as a unit. The sound of this third beat as the goal of motion can be interpreted in a manner which parallels the voice leading of measures 7-9.

Example 4-22. *Op. 19* no. 2, mm. 2-3.



Measure 3 and measure 9 thus provide relatively clear points of harmonic articulation. The other significant foreground point of arrival (measure 6, third beat) is more complex. B-D in the highest voices here gives a strong clue to the ear that the point of arrival is likewise *not* whole-tone (there are no minor thirds in a whole-tone collection). B-D furthermore repeats those pitches as a simultaneity from measure 2. C is present (spelled as B#) in an inner voice together with B-D. Hearing this C in the middle of a closely voiced six-part chord would be far more difficult if it were not for the fact that C is also heard as first the higher then the lower voice of the two-part texture in the first part of measure 6. This two-part texture supplies three semitone motions: Ab-A; C-C#; and Eb-D. The first of these semitone motions repeats the relationship stated in measure 3, the second prolongs C with its neighbor Cl and the third clarifies the meaning of the D-Eb (heard in measure 3, 4, and 5) through its resolution to D in the top voice.

Example 4-23. *Op. 19* no. 2, m. 6.



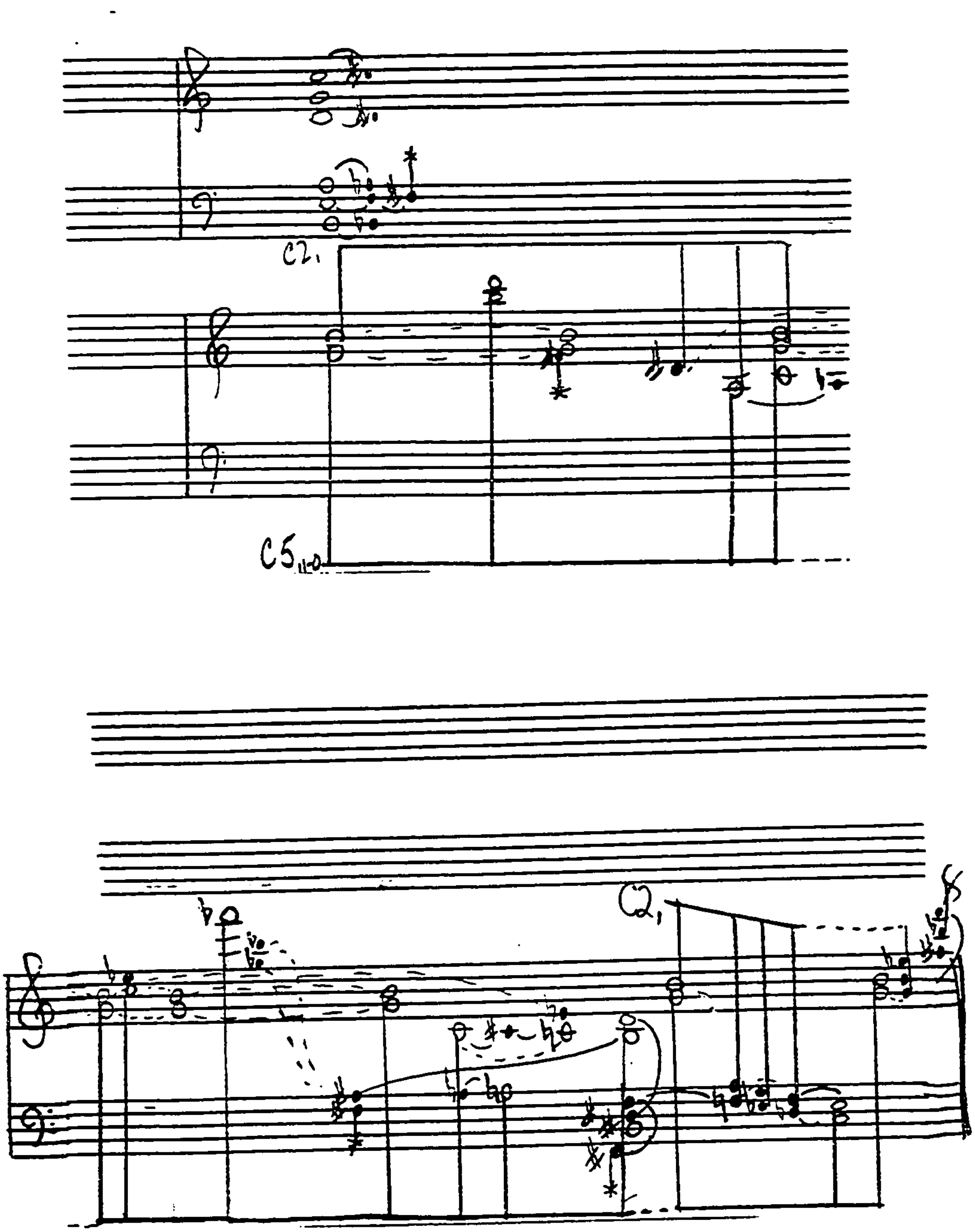
The remaining pitches of this six-part chord (F#-D#-F) are integrated into the voice leading in a way which is not immediately clear, but is nonetheless comprehensible. D# verticalizes the Eb-D of the top voice. As has already been noted, the presence of a semitone related structural tone and nonstructural tone simultaneously in separate octaves is a technique used throughout the opus. The F-natural of the six-part chord will be immediately picked up as the lower voice of the whole-tone progression which unfolds in measure 7. F is furthermore the only pitch of these descending major thirds which is repeated, at which point it affects a resolution to E. F# is thus the neighbor-tone of the neighbor-tone, here heard simultaneously with its resolution in another octave. The presence of such a "dissonant" voice leading element in the bass is perhaps used to balance the very stable (or "consonant") effect of the repeated G-B.

This interpretation furthermore confirms the intuitive response to the music in which the second "cadential point" is the most concentrated, and the most "dissonant." The harmonic tension of measure 6 is immediately placed in relief by the clear-cut unfolding of the final measures.

A particularly interesting feature concerning all of the cadential points is that each is built around a unique four-note segment of the six-note structural collection. At measure 3 it is A-C-G-B; at measure 6 it is A-C-B-D; and at measure 9 it is C-E-G-B. In each case four of the structural pitches stand for the collection, but only through the collective consideration of all three subcollections is the entire $C5_{11\text{-}0}$ collection unfolded at the middleground. A similar treatment of four-note segments occurs in *Op. 19* no. 1. The details of that unfolding, and its influence on the perceptual effect of Nos. 1 and 2 in performance will be addressed in the analysis of No. 1.

The following graph (Example 4-24) demonstrates the overall voice leading of *Op. 19* no. 2. In addition to showing the entire piece as a single unfolding of $C5_{11\text{-}0}$, the function of the whole-tone collection as a prolonging device is shown by the upward stems which connect those elements. These whole-tone collections are not connected in the graph because each depends on resolution to the overriding $C5_{11\text{-}0}$. The $C2_1$ collection which prolongs the structural fourth collection is the same whole-tone collection which is hinted at in the final chord which combines the augmented triad G-B-Eb with its semitone neighbors, an octave higher. It is likely the same whole-tone collection in each case because G and B are used as common tones.

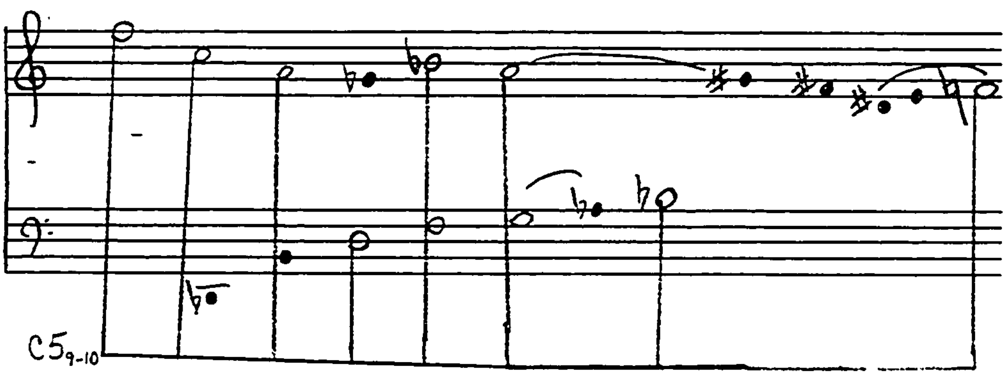
Example 4-24. Schoenberg, *Op. 19* no. 2.



OPUS 19 NO. 5

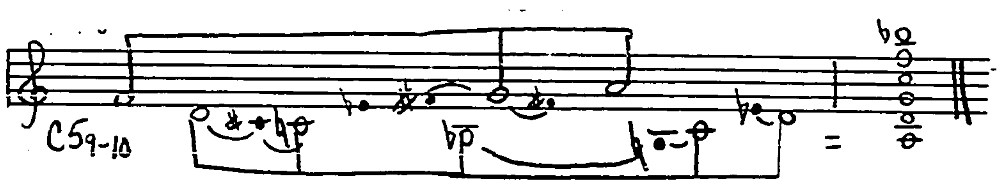
No. 5, like No. 4, is cast in a fast tempo. The top voice of the first measures of No. 5 also gives the impression of being a vague motivic variant of the opening tune of No. 4. Closer examination reveals F-C-A and Bb as pitches which are unfolded in both cases, as such the opening of No. 5 unfolds a four note segment of $C5_{9\text{-}10}$. As the top voice continues, there is a strong sense of motion to the F at the beginning of the next phrase, which confirms F as a structural pitch. Looking now to the left hand, all of the pitches (with the exception of Db and B-natural) either belong to the structural collection, or present a clear voice leading relationship to it. Ab (or G#) is ambiguously related to both G and A in measure 2, though it gives the impression of being nonstructural in both cases. The F# (reiterating the unresolved Gb of measure 1), D#, and E of measure 3 give the further impression of being nonstructural. The chromatic motion D#-E-F is therefore viewed as a nonstructural voice leading providing a strong sense of resolution to the F of measure 4.

Example 4-25. Schoenberg *Op. 19* no. 5, mm. 1-4.



The voice leading thus reveals a deeper connection between No. 4 and No. 5, in that both unfold A-D-G-C-F-Bb ($C5_{9-10}$) as the initial structural collection. Continuing to follow the top voice for the moment, F# reappears, this time resolving to G and followed by A: this top voice (mm. 4-8) thus unfolds half of the hexachord, F-G-A. In the voice immediately below, the other three pitches of the hexachord are unfolded in contrary motion: D, with a passing C#, C and Bb, followed by a motion which unfolds the same pitches in the opposite direction.

Example 4-26. *Op. 19* no. 5, mm. 4-8.



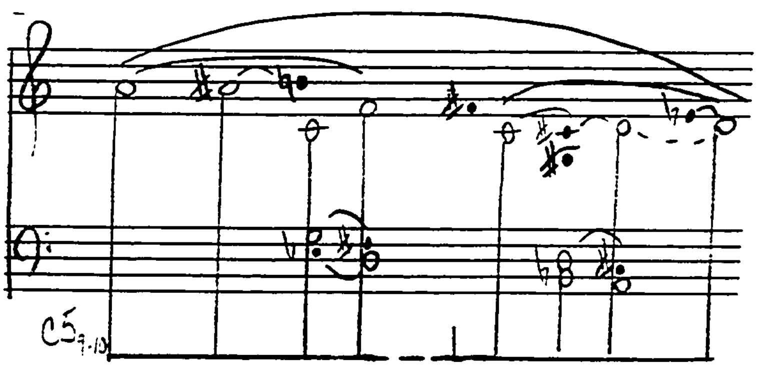
The rhythmic shape of these two upper voices and their expressive markings indicate them as the more important voices of what is initially a four-voice texture. The lower "accompanying" voices are expanded by one voice in measure 5. This fifth voice (Db, m. 5) is then continued in measure 7, and given a similar rhythmic shape and expressive mark (m. 8). Tracing the voice leading of these lower parts reveals a further unfolding of $C5_{9-10}$. This is confirmed at the end of the phrase where four of the five voices are members of the structural collection, arranged according to their interval of generation (as a series of perfect fifths). The lowest voice (F#) is a semitone displacement of the structural tone

G.

Example 4-27. *Op. 19* no. 5, mm. 4-8.

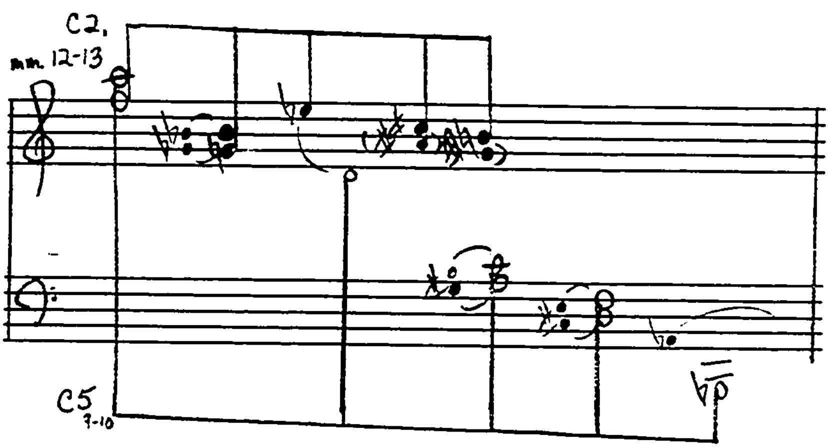
Measures 9-11 reiterate many of the semitone relationships of the previous phrase -- Eb-D, G-F#, D-C#, C-C#-D -- and end with Eb-D in the same register as measure 8, recalling the "cadence" of that measure. The top voice actually composes out the perfect fifth A-D, outlining the vertical relationship of the top two voices from the previous cadence. As such, this third phrase is something of a recomposition of the second phrase, though expanded to two shorter phrase units and concentrated from 5 to 3 measures. $C5_{9\text{-}10}$ is still the structural hexachord.

Example 4-28. *Op. 19* no. 5, mm. 9-11.



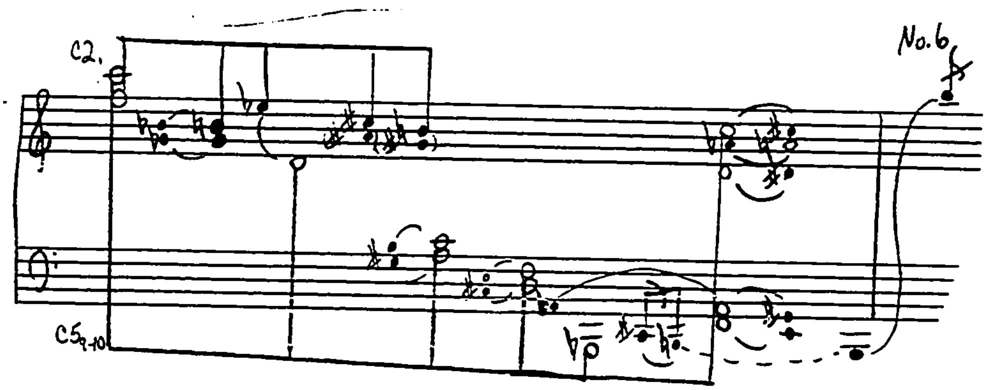
The final phrase recalls the opening through a return to the register of the opening F. Its appearance as a simultaneity with A above creates a further reference to the opening of No. 4. There is a confluence of major and minor thirds, several of which move by halfstep in a manner which repeats the left hand motive of measures 9-10. The "top voice" unfolds A-Eb-C#-B, which (despite the presence of minor rather than major thirds below C# and B) has a distinct whole-tone sound. This is countered by two semitone motions in the left hand which resolve to D-F-A-C in measures 13-14. Once again, Schoenberg uses the foreground emphasis of four structural pitches to identify the collection. At the same moment that these are achieved, the right hand reaches into the bass register and adds a fifth structural pitch: Bb.

Example 4-29. *Op. 19* no. 5, mm. 12-13.



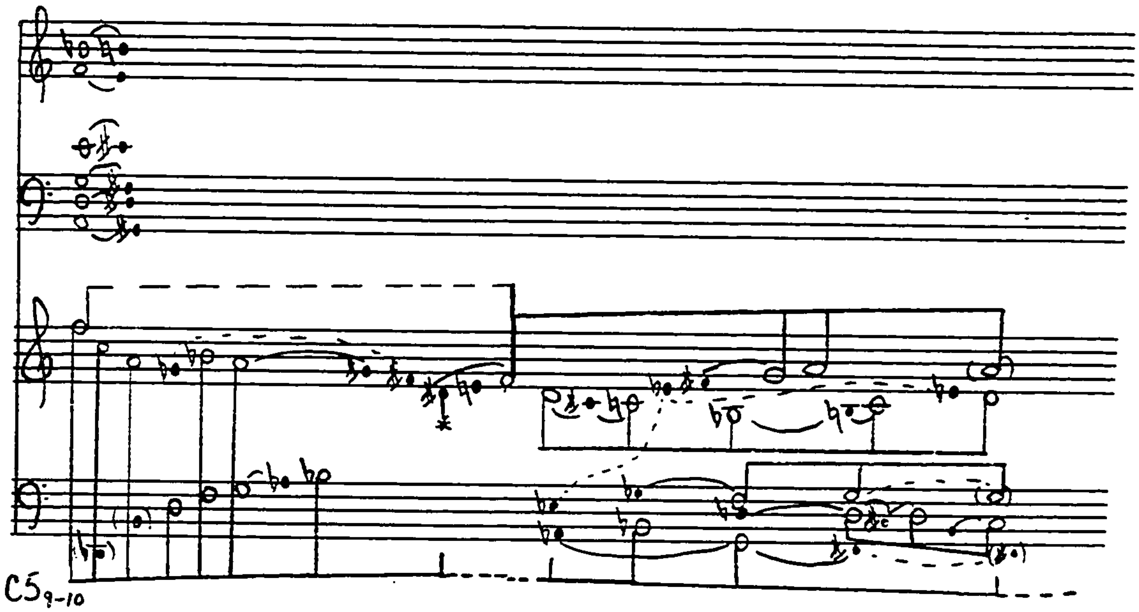
C# and B (which were prominent in the top voice of measure 13) are reiterated in measure 14 in the lowest register, repeating their role as nonstructural tones. The low B is held as the final two chords have the "last word" on semitone dyadic relationships: C-C#, G#-A, F-E, D-Eb. These motions clarify the previously ambiguous semitone relationships which occurred throughout the piece. The low B at the end of No. 5 remains unresolved. It is transferred to the top voice in the first chord of No. 6, and receives its resolution with the chord in measure 1 of that piece. The intuitive effect of No. 6 as a coda-like piece, resolving the unfoldings of the previous pieces is thus motivated by voice leading.

Example 4-30. *Op. 19* no. 5, mm. 12-15.



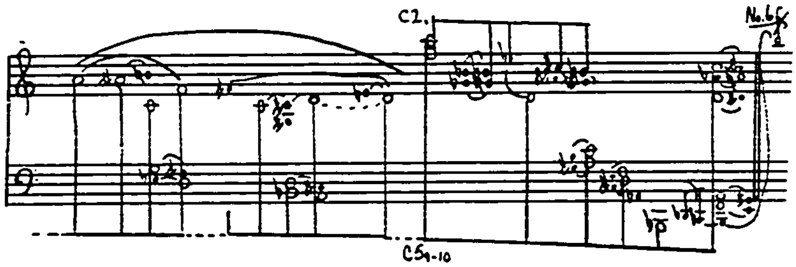
The following graph (Example 4-31) summarizes the long range voice leading of No. 5. Though the semitone relationships between the structural and the prolonging collections are sometimes ambiguous, those established as primary are: A-G#; D-Eb; G-F#; C-C#; F-E; Bb-B. This arrangement does not involve a neighbor-tone of the neighbor-tone relationship. As such, the prolonging hexachord is the tritone transposition (rather than the semitone transposition) of the structural hexachord. Curiously, this arrangement is closer to the kind of hexachordal relationship common in Schoenberg's later more "advanced" combinatorial twelve-tone music.[31]

Example 4-31. Schoenberg, *Op. 19* no. 5.



[31]Four of the six combinatorial source sets identified and first listed in Milton Babbitt, "Some Aspects of Twelve-Tone Composition," *The Score, and I.M.A. Magazine*, 12 (June, 1955), 57-60 show hexachords which are related by tritone transposition.

Example 4-31. (continued). Schoenberg, *Op. 19*, no. 5.



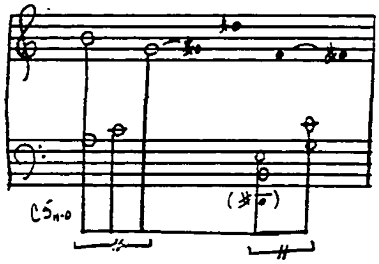
OPUS 19 NO. 1

The harmonic unfolding of No. 1 is by far the most complex. Its texture is contrapuntally richer and motivically more varied than any of the other pieces. This density of texture perhaps in part motivates the brevity of the phrases and prepares the listener for the extreme concentration of gesture which is a hallmark of the opus. Because of its density and concentrated voice leading I have chosen to analyze this piece last.

In analyzing all of the pieces of this work, one of the primary *modus operandi* has been the notion that a group of pitches which are generated by a single interval sound as a unit and therefore lead to the interpretation of pitches as structural and nonstructural. Throughout the later pieces of the opus numerous occasions demonstrated that four pitches of a structural hexachord "stood for" that collection. The first piece exhibits this approach to the presentation of the structural pitch material in a manner which is by far the most systematic.

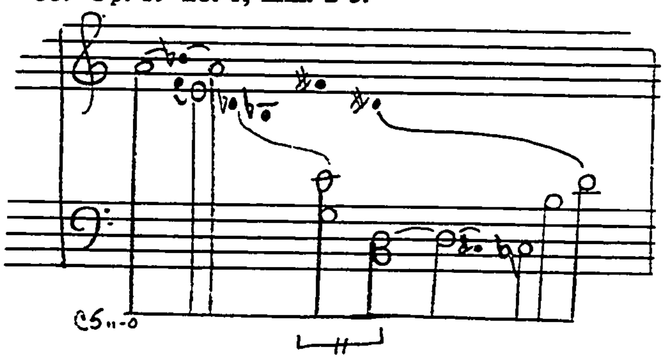
In the opening phrase (through the first full measure) there are two arpeggio-like figures (opening upbeat figure, and left hand figure, measure 1). Each of these involve a different group of four of the six pitches of $C5_{11\text{-}0}$. The G# of the anacrusis displaces the G, but the voice leading surrounding the other nonstructural tones is less clear (this will be explained later).

Example 4-32. Schoenberg, *Op. 19* no. 1, m. 1.



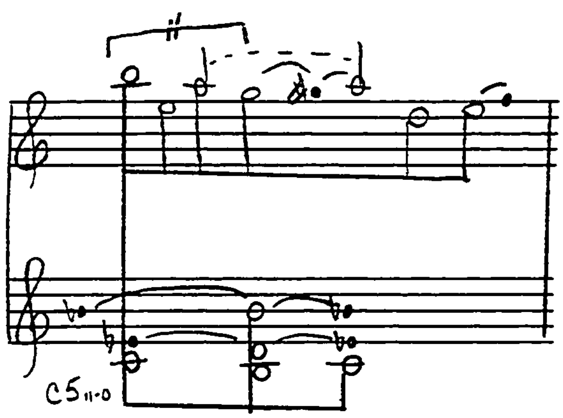
In the second phrase there is a similar 32nd note figure (m. 2), though this is less like an arpeggio. The nonstructural tones are this time more concentrated at the beginning of the phrase, and the left hand again supplies a four-note segment of the structural collection (fourth eighth-note of measure 2). The phrase is extended into the next measure and the structural tones of the structural "chord" are repeated, three of the four (C, B, D) in an additional octave. It should be noted that the extension represents a restructuring of the rhythmic material of the first phrase, though the result is that both are the same length.

Example 4-33. *Op. 19* no. 1, mm. 2-3.



When middle C arrives at the beginning of the third phrase (after the accented Bb), it is the fourth repetition of that pitch in that octave, a further indication of its status as a structural tone. At the same moment that this is reaffirmed, the top voice reiterates the 32nd note motivic idea, providing a different four note segment of $C5_{11\text{-}0}$, though G# is again a displacement of G. The Eb and Bb which sound together with middle C also resolve to structural tones.

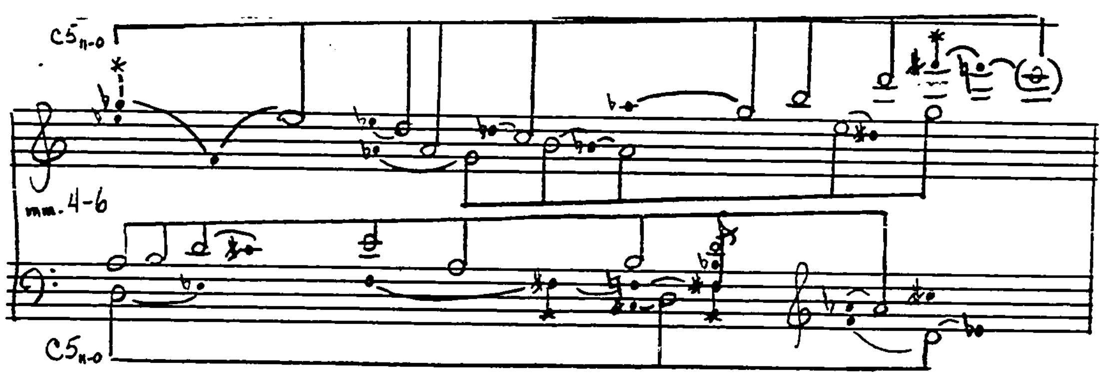
Example 4-34. *Op. 19* no. 1, mm. 3-4.



The four-note groups of structural tones which have been identified collectively unfold the entire $C5_{11\text{-}0}$ collection. Each is also a unique four note segment: A-C-G-B; B-E-G-C; B-D-G-C; B-E-A-G.

At this point (middle of measure 4) the bass register reenters and there is a consistent use of four and five voices. The top voice of measures 4 (fourth beat) through 6 now present the most elaborate, and the only complete, melodic unfolding of the structural collection. The first part of this is a motion Gb-F-E (with the F displaced to the lower octave) which clarifies the meaning of F# and F in the first two phrases (these were the nonstructural pitches whose voice leading was unclear in the first two phrases). There seems to be a strong directed motion to the end of this phrase (end of measure 6) at which point this opening motion (F#-F) is repeated in a higher octave, though the final resolution to E is denied. This foreground voice leading motivates the interpretation of F# as the neighbor-tone of the neighbor-tone which resolves to F, which ultimately resolves to E as the tone of the structural collection. The voice leading of the next large phrase (through measure 12) will clarify the significance of E as a goal of motion.

Example 4-35. *Op. 19* no. 1, mm. 4-6.

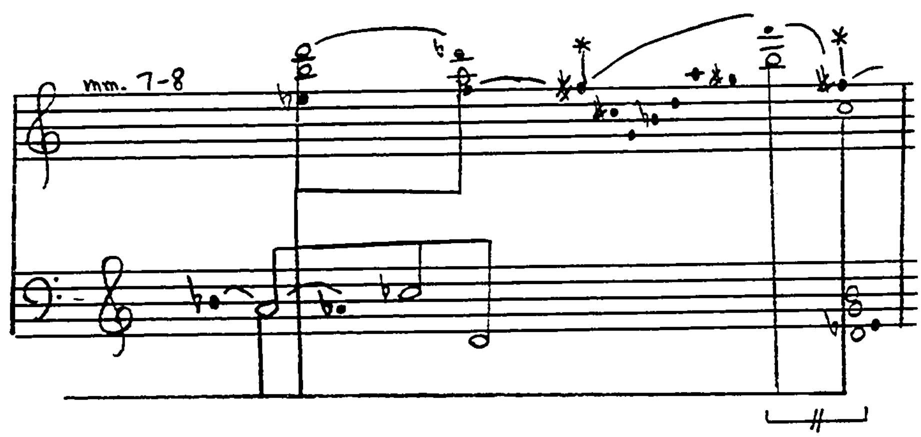


An interesting detail of the inner voice unfolding occurs in the "tenor" voice. The previous graph shows that voice unfolding the structural tones A-B-D-E, A-B-D-A. A-B-D-E is still another unique four-note segment of $C5_{11-0}$. Perhaps the omission of E at the end of the phrase contributes to the expectation and sense of arrival when it finally does appear in the "top voice" in measures 10 and 12. As such, the inner voice supports and clarifies the top voice motion to E as a long range goal.

The rhythmic shape of measures 7-12 is more fragmented than the continuous texture of the previous phrase. However the arpeggios, *flüchtig* passages in 32nd notes, and even the tremolo are each developments of the rhythmic and gestural ideas of the first measure.

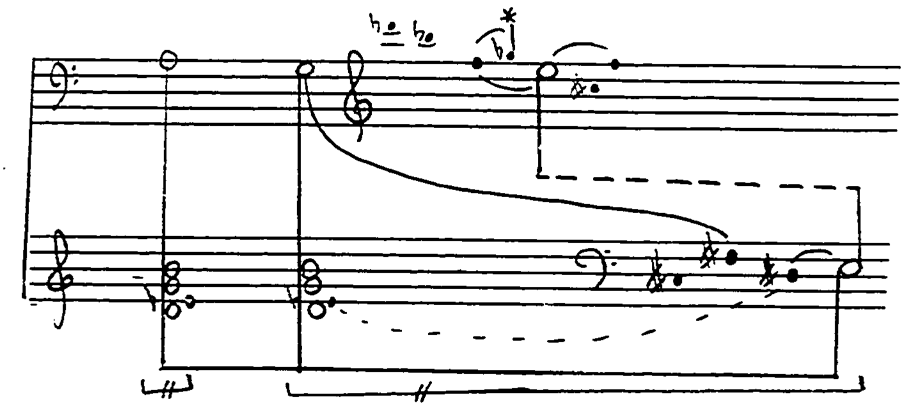
A-B-D are the only pitches of $C5_{11\text{-}0}$ which are unfolded in measure 7. The *flüchtig* passage (measure 8) begins on F#, moves to F in the higher octave, and leaps immediately back to F# (following the top voice). This motion between F and F# creates the expectation of E, which is again denied. The B and C which are heard simultaneously with the F and F# at the end of the *flüchtig* passage combine with the pitches of the tremolo to provide yet another four note segment of $C5_{11\text{-}0}$: D-G-B-C.

Example 4-36. *Op. 19* no. 1, mm. 7-8.



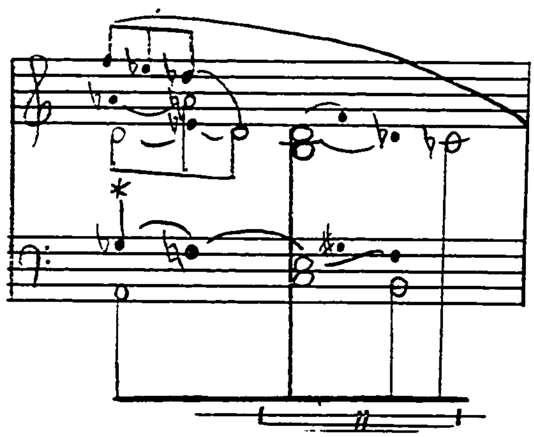
As the tremolo continues, the right hand crosses over the left reaching into the lower register for first A and then G. A creates another four note segment of $C5_{11-0}$ (D-G-B-A), but the G doubles a pitch contained within the tremolo. Another four note segment (E-G-B-D) is created with the E of the *flüchtig* figure in the right hand of measure 10. This E is on an accented part of the measure, it coincides with the stopping of the tremolo, and it is accompanied by F and F# as supporting foreground voice leading. Despite all of this foreground support, E is nevertheless only fleetingly stated, and is furthermore displaced by F, which is tied over into measure 11. Curiously, at the point at which E is finally unequivocally achieved (measure 12) the supporting voice leading is not what we would expect. F# is (in measure 11) is a back-relating neighbor tone to G, and D# (rather than F# and F) resolves to E. This is contrary to the neighbor-tone relationships which have been prominent until this point. Nevertheless, the two statements of E are related in that each completes a four note segment of $C5_{11-0}$.

Example 4-37. *Op. 19* no. 1, mm. 9-10.



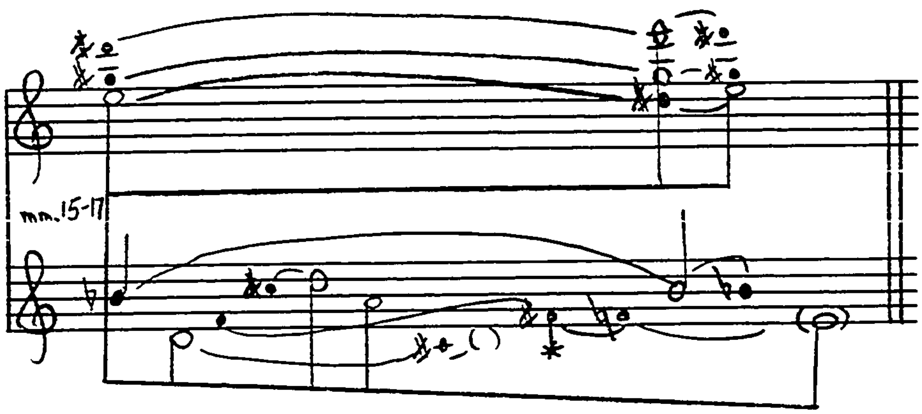
In all cases up until this point, the four note segments which have indicated the structural collection were all accompanied by nonstructural pitch material. Schoenberg makes his "final" cadence more "consonant" by combining the expected voice leading resolving to E (F#-F-E in the "tenor" voice) with the simultaneous statement of another four note segment C-E-B-D in measure 14. This segment appears on the first beat of the measure and does not sound together with any nonstructural pitches.

Example 4-38. *Op. 19* no. 1, mm. 13-14.



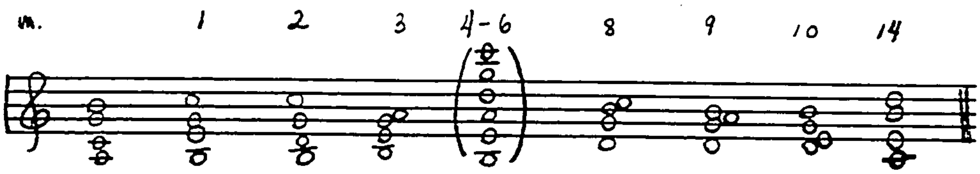
The final phrase (mm. 15-17) moves away from a clear statement of the structural collection. There are five voices, four of which involve semitone motions between structural and nonstructural pitches. The moving part (the lowest voice) eventually comes to rest on F#, followed by F (a motion which is emphasized by its arrival on the first beat of the measure and through the use of oblique motion). The expected E is again denied in this voice, though a certain satisfaction is perhaps achieved by the transfer of this resolution into the highest voice (E is of the piece. The final measures thus provide relative instability, in terms of their middleground harmonic meaning. In this way Schoenberg prepares for the more transparent voice leading of the second piece, which unfolds the same structural collection at its deepest level.

Example 4-39. *Op. 19* no. 1, mm. 15-17.



Before considering the long range voice leading of the entire first piece, a final word is required concerning the four note segments of $C5_{11-0}$ which were identified. Each of the eight segments identified is unique in terms of content, though each is a subcollection of the same hexachord. The more elaborate unfolding of measures 4-6 which unfolds the *entire* collection is included in the diagram for the sake of completion. It should also be noted that there are only 10 possible unique four-note segments which can be drawn from a six-note collection. Schoenberg's permutational incompletion should in no way be construed as evidence of musical incompletion.

Example 4-40. *Op. 19* no. 1, four-note segments of the structural collection summarized.



The following graph (Example 4-41) summarizes the voice leading of the entire first piece. Once again, the neighbor tone relations viewed as most important are summarized as a separate aspect.

Example 4-41. Schoenberg, *Op. 19* no. 1.

LONG RANGE VIEW OF THE ENTIRE OPUS

The preceding analysis reordered the pieces of *Opus 19* in order to more gradually introduce the reader to the voice leading complexities. Composers very rarely present their musical material in such an orderly fashion. However, now armed with an understanding of the organic nature of each of the individual pieces, we can perhaps make some general observations concerning the effect of the long range voice leading on the entire opus as it is perceived in performance.

To summarize the findings now, in order, we see that Nos. 1 and 2 involve the unfolding of the hexachord $C5_{11\text{-}0}$. These two pieces which are so drastically different in terms of the density of texture thus have a common voice-leading aspect. Gestural contrast and harmonic contrast are thus separate in function. The final phrase of No. 1 which less clearly represents the structural hexachord thus acts as a bridge between the two pieces.

The preceding interpretation of No. 1 and No. 2 as unfoldings of the same hexachord establishes a relatively slow rate of harmonic change at the middleground level. As such, the concentrated unfolding of No. 3, offers contrast. Here a new hexachord, $C5_{0\text{-}1}$, is completely unfolded in the lower register in the first four measures, with only a very minimal use of nonstructural pitch material. The final measures represent a motion away from this middleground unfolding, and again provide a voice leading connection with the piece which follows. In this case, it is not merely a motion away from the predominant hexachord, but a motion to $C5_{9\text{-}10}$ which prepares the more elaborate unfolding of that collection in No. 4.

This new structural collection ($C5_{9\text{-}10}$) is the primary structural collection for both No. 4 and No. 5. These two pieces thus display a relation based on middleground voice leading similar to the relation described between Nos. 1 and 2. The difference here, is that No. 4 and No. 5 are *closely* related to one another texturally, and, to a degree, motivically. By comparing this with the relationship between No. 1 and No. 2, we see that middleground harmony and motivic/textural elements combine in the long view of the opus to create an interestingly asymmetric plan.

The drastic textural contrast of No. 6 sets it off from the two previous pieces, giving it a function similar to that of No. 3. However, this last piece shares five of the six tones of the structural collection with Nos. 4 and 5. No. 3 moves to a distant collection in order to most radically contrast the long range harmony of Nos. 1 and 2. No. 6 offers textural contrast to Nos. 4 and 5, but the harmonic contrast is minimal, thus reinforcing the intuitive reaction to No. 6 as a coda.

Examining the relative pitch content of the structural collections reveals another kind of logic to the ordering of the pieces. If one considers the boundary pitches of the structural hexachord (B-C, as the boundary pitches of B-E-A-D-G-C, for example) one finds that the collective consideration of the boundary pitches of each of the structural hexachords chromatically fills the space between A and Eb.

Example 4-42. "Summary" of *Op. 19.*

This does not represent a background structure in the manner of a tonal background. However, the intuitive response to a performance of these pieces is that there is harmonic motion, a sense of harmonic variety and repetition, and a sense of closure or completion at the end of the last piece. It should not be surprising that the end of the composition does not return to the unfolding of the first piece. This kind of closure is logical and organic for tonal music because of the specific nature of the relationships of the triads which comprise its harmonic language. There is no such self-evident relationship for totally chromatic music. Perhaps the so-called "progressive" tonal plans of the works of Mahler, for example, are early evidence of this nontonal approach to long range harmony.

CHAPTER 5

CONCLUSIONS

GENERAL SIGNIFICANCE OF THE METHOD FOR THE ANALYSIS OF POSTTONAL MUSIC

In his introduction to Schenker's *Harmony*, Oswald Jonas claims that "the chief merit of Schenker's early work consists in having disentangled the concept of the scale-step (which is part of the theory of harmony) from the concept of voice-leading (which belongs in the sphere of counterpoint)."[33] Schenker was thus able to succinctly describe the relationship between the vertical and horizontal dimensions in tonal music. The interaction of these two dimensions allows him to incorporate the element of time as an integral part of analysis (it had always been an integral part of composition). To seek clear parallels of all or even most of the specific tonal functions outlined by Schenker is to deny totally

[33]Heinrich Schenker, *Harmony*, ed., Oswald Jonas, trans., Elisabeth Mann Borgese. (Cambridge: The MIT Press, 1954, original edition, 1906), ix.

chromatic music its own "nature" which is the chromatic scale. However, the present study proceeds from the assumption (based on the model of Schenker) that music of the posttonal era demonstrates the basic functions of harmony and counterpoint. Essential to this idea is the distinction between the scale-step and voice-leading as demonstrated in Schenker's concept of *Auskomponierung*. For the posttonal music examined, the harmonic element of *Auskomponierung* consists of a collection of pitches generated by a single interval (though the complete collection does not usually appear on the foreground). The analyses presented herein interpret harmony not on the basis of individual chords but on the basis of the collective linear statements of a particular phrase. The harmonic element is the middleground result of linear unfoldings of the individual lines. Schoenberg hints at such a view in the *Theory of Harmony*: "It is apparent, and will become increasingly clear, that we are turning to a new epoch of polyphonic style, and as in the earlier epochs, harmonies will be a product of the voice leading: justified solely by the melodic lines."[34] The variety of foreground simultaneity is not a hindrance to the understanding of the harmony of posttonal music. In the same way certain chromatic passages in tonal music of the 19th century can best be understood in terms of middleground goals and motions.[35]

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[34]Schoenberg, *Theory of Harmony*, 389.

[35]The reader is refered to Schenker's *Five Graphic Music Analyses*, (New York: Dover, 1969) in which he refers to this exact problem with regard to the analysis of certain passages in Chopin; the Etude in F Major, Op. 10 no. 8, and the Etude in C Minor, Op. 10 no. 12. In these two analyses, Schenker finds it necessary to state three times that the "voice leading of the middleground alone offers the correct solution" to the analysis.

The contrapuntal aspect of *Auskomponierung* is that aspect through which the vertical and horizontal dimensions of posttonal music are coordinated. This contrapuntal aspect is represented through the distinction between structural and non-structural as demonstrated in the analyses. At the center of this aspect is the differentiation between an interval of motion (semitone) and unfolding (whole tone or larger). The contrapuntal function of the semitone is a key element of the analytical method which allows the reduction of a posttonal musical context to various levels of structure. The multiple levels of structure which result from such an analytical approach provide the analyst with the basis for another of Schenker's concepts, that of the scale-step. Schenker places great importance on this concept in his *Harmony*: "The most important device aiding both the composer and the listener to find his bearings is the concept of the so-called 'scale-step'"[36] It is in these early discussions of the scale-step that Schenker foreshadows the development of the theory of *Schichten*: "The scale-steps, to use a metaphor, have intercourse only among themselves, and such intercourse must be kept free from interference by those triads which do not constitute scale-steps."[37]

Every chord in a tonal piece is not a "scale-step": a scale-step is a harmony which lies a level deeper than the foreground. The analysis of Debussy's "Jimbo's Lullaby," in Chapter One, established the "diatonic scale" at the scale-step level of harmony; the curious chord-to-chord "progressions" so often found in this music were thus demonstrated as

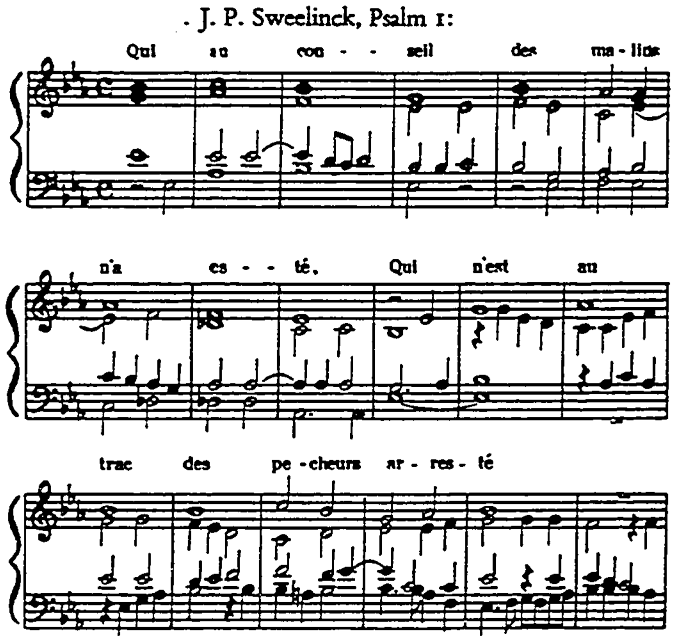
[36]Schenker, *Harmony*, 138.

[37]Schenker, *Harmony*, 152.

unfoldings of the larger harmony. Since Schenker did not understand the nature of such progressions, it is not surprising that he criticized composers who "heap chords upon one another without unfolding them in motivic substance and then clarifying the step process."[38]

In the chapter on "The Scale-Step and Counterpoint," Schenker points out an example by J. P. Sweelinck (ex. 135) in which he criticizes an "overabundance of harmonies in the vertical direction" utilized to unfold a "most humble harmonic content."[39]

Example 5-1. Schenker, *Harmony*, EX. 135



[38]Schenker, *Harmony*, 212.

[39]Schenker, *Harmony*, 165.

Schenker goes on to remark that "while it is gratifying to see that, even at such an early date, the melody is already able to unfold a harmonic concept so unambiguously, the paucity of result-- to wit, a single triad-- is nevertheless striking." Had Schenker understood the nature of the harmony in an example such as "Jimbo's Lullaby," he would have offered the same criticism. The predominantly "white-note" harmony utilized by Debussy in this example results in harmonies at the foreground which are only then repeated at the next level of structure, resulting in a strikingly similar "paucity of result".

Schoenberg himself acknowledged the need for a theory of harmony which incorporated the horizontal dimension of music. He imagined a concept of harmony which rejected the old notion of figured bass or individual chord recognition as a requirement for the analysis of posttonal music. "One might reach conclusions concerning the constitution of chords (in modern music) through a procedure similar to figured bass more easily than one could clarify their function by the methods of reference to degrees."[40] Schoenberg thus acknowledged that a mere labelling system was insufficient for the new harmony. It was necessary for theory to acknowledge the vertical and the horizontal dimensions of music.

The analyses of Schoenberg's *Op. 15* no. 1, and *Op. 19* have incorporated the Schenkerian concepts of harmonic and nonharmonic; prolongation; the scale-step; composing out (*Auskomponierung*); and levels (*Schichten*). While there may be plausible alternate readings of various passages, the application of these concepts to posttonal music provide the

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[40]Schoenberg, *Harmony*, 389.

analyst, the listener and the performer with a means of systematically proceeding from an initial intuitive response to the music to a deeper understanding of the pitch relationships which steer the course of that intuitive response.

The Debussy example demonstrates the analytical method in a context which is relatively uncluttered. In this example, the cyclical collection is clearly established on the foreground, as is the relationship between structural and nonstructural pitch material. Among the features of Schoenberg's more complex voice-leading is the aspect of the fixed neighbor-tone relation. This aspect is first of all an indicator which helps to distinguish the relationship of structural and nonstructural pitch material. It is also important in terms of the development of Schoenberg's harmonic style. This aspect, which includes the neighbor-tone of the neighbor-tone relationship, implies a harmonic procedure which involves the strict organization of the entire chromatic, rather than merely its division into exclusive hexachords which are structural or nonstructural. This fixed relationship points the way to Schoenberg's twelve-tone method not as a "new system" used to fill the procedural void of a "free atonal" style. In this light Schoenberg's posttonal music demonstrates a systematic harmonic method which organizes a middleground hierarchy, and (primitively) ordered the foreground. The more strictly ordered surfaces of his twelve-tone music can thus be seen to grow directly out of this music.

An intuitive response acknowledges that the pieces of *Op. 19* are somehow in "the right order," that there is a consistent treatment of harmony which goes beyond such "atonal" concepts as avoiding octaves, avoiding triads, avoiding scale fragments, etc., and that there is a sense of closure in the final piece. These are all borne out in the analysis. A byproduct of the voice-leading graphs is perhaps to deny this music some of the mystery and inpenetrability which has long been part of its history and reputation. At the same time, however, it allows his voice to emerge with his self-proclaimed ties to traditional composition all the more intact. The music does, in fact, move in phrases which are controlled by a sense of harmonic unfolding and voice leading; an intuitive response to cadence in the small and such notions as beginning, middle, and end in the large are accompanied by identifiable harmonic events; the tremendous freedom of foreground motive is not without its own inner logic and direction.

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__________. "Beyond Analysis," in *Perspectives on Contemporary Musical Theory*, ed. Benjamin Boretz and Edward T. Cone. New York: W. W. Norton, 1972, 72-90. Cone criticizes most recent analysis of 20th century music. His primary complaint is that "the analyses, with few exceptions, demonstrate connections-- how one section is related to another-- rather than progressions-- how one section follows another."

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Morgan, Robert P. "Dissonant Prolongations: Theoretical and Compositional Precedents," *Journal of Music Theory* 20 (1976), 49-91. Discusses the Dominant seventh chord, the diminished seventh chord and the augmented triad as prolongational structures in tonal music. Also includes discussion of the whole-tone scale as a prolongational structure in Debussy.

Oster, Ernst. "Re: A New Concept of Tonality(?)," *Journal of Music Theory* 4 (1960), 85-98. Oster does not consider Schenkerian procedures applicable to nontonal music because of the lack of a relationship between foreground quasi-tonal progressions and the function of the triad at a deeper level. "If this basic premise, this originating principle of tonal music is lost in non-triadic music, any apparant similiarity between tonal and non-triadic music cannot be considered a true analogy." (p. 96).

Perle, George. "Theory and Practice in Twelve-Tone Music," *The Score* 25 (1959), 58-64. Perle calls for analysis of twelve-tone music which deals with the music as a concrete phenomenon, more than as a conglomeration of abstract concepts. In this regard he seems to disagree with Babbitt who feel that, perhaps, twelve-tone music requires new methods of "conception and perception".

__________. "Atonality and the Twelve-Tone System in the United States," *The Score* 27 (1960), 51-66. Perle develops Babbitt's idea of "conceptual composition" in which "a referential complex of notes" operate as an organizational means. This idea is more fully worked out in *Serial Composition and Atonality.*

__________. "The Musical Language of Wozzeck," *The Music Forum* 1, eds. William Mitchell and Felix Salzer, New York: Columbia University Press, 1967, 204-259. Systematic discussion of "those elements of pitch organization that generate the context within which themes and motives operate,... and that provide a basis for harmonic continuity and contrast", using *Wozzeck* as a model.

__________. "Berg's Master Array of the Interval Cycles," *The Musical Quarterly* 63 (1977), 1-30. Discusses symmetrically aligned interval cycles as a means of pitch organization in Berg and other composers. The existence of such phenomena is important to Perle's more systematic development of the same principles.

__________. *Serial Composition and Atonality*, 5th ed., Berkeley:

University of California Press, 1981. Analyses of atonal and dodecaphonic music from a standpoint which logically considers the organizational properties of the twelve tones related only to each other.

__________. *Twelve-Tone Tonality* Berkeley: University of California Press, 1977. One of the most significant discoveries for Perle is the importance of inversionally symmetrical structures as a means of defining atonal space. Since the 1940's he has been developing his system of "Twelve-Tone Tonality" whereby he utilizes such structures to systematically organize the entire chromatic spectrum and provide a method for composition.

__________. *The Operas of Alban Berg*, vol. I, *Wozzeck*. Berkeley: University of California Press, 1980. Reviewed by Martha MacLean Hyde, in JAMS 34 (1981), 573-587.

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Salzer, Felix and Schachter, Carl. *Counterpoint in Composition*. New York: McGraw Hill Book Company. 1969.

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__________. *Five Graphic Music Analyses.* with an intro. by Felix Salzer. New York: Dover Publ., 1969. (Originally published in 1933.)

__________. *Free Composition.* vol. III of "New Musical Theories and Fantasies," trans. and ed. Ernst Oster. New York: Longman Music Series, 1979. (Original date of publication, 1935.)

Sessions, Roger. *Harmonic Practice.* Berkeley: University of California Press, 1951. Though essentially a classroom text, the final chapter does contain a revealing insight into this composer's perception of the function of certain intervals normally associated with tonality (i.e.- the perfect fourth and the semitone) in an atonal context. Essentially, he feels they are the same in either a tonal or an atonal context.

Suderburg, Robert. "Tonal Cohesion in Schoenberg's Twelve-Tone Music." Ph. D. diss., University of Pennsylvania, 1966. Applies the principles of tonality, as they are presented in Schoenberg's *Theory of Harmony* to the twelve-tone music.

Teitelbaum, Richard. "Intervallic Relations in Atonal Music," *Journal of Music Theory* 9 (1965), 72-128. Analysis of atonal music through an application of "intervallic relations as compositional determinants," utilizing the computer as an analytical aid. His statistical data reveals that the overwhelming favorite interval collection is that of a three note set which contains one semitone, one minor third and one major third.

Travis, Roy. "Toward a New Concept of Tonality," *Journal of Music Theory* 3 (1959), 257-284. Introduces Travis' idea of the dissonant tonic-sonority. "There is no reason why...any...conceivable combination of tones...cannot become the tonic sonority of a tonal music." Tonal being defined as "a musical motion which unfolds through time a particular tone, interval or chord." Includes analysis of Bartók's "Syncopation" (#133 from Microcosmos).

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STRING QUARTET, NO. 2

BY

EDWARD M. SMALDONE

A dissertation submitted to the Graduate Faculty in Music in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.

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ABSTRACT

STRING QUARTET, NO. 2

by

Edward M. Smaldone

Advisor: Prof. Henry Weinberg.

Three movements (Vibrant, Exalted, Recitative: Scherzo) for two violins, viola, and 'cello. Part I of this dissertation is an essay entitled "Linear Analysis of Selected Posttonal Works of Arnold Schoenberg: Toward an Application of Schenkerian Concepts to Music of the Posttonal Era."

String Quartet No.2

Edward Smaldone


mf
più p
cresc. . .
f
B
p


C
sub p
poco f
mf
fp
p


pizz.
arco


D
pizz
arco
cresc.
E
poco f

Aztec® CM 12/2


I
cresc.
fp
f
pp
J
♩=66
con sord.
legato, with great calm
calmato

Aztec® CM 12/2


L
with more intensity
un poco appassionato


più appassionato
poco f
un poco appassionato
poco rit. . .


M
poco più mosso
poco f
f
p
più f

Aztec® CM 12/2


N
Più Mosso
O
with great calm


a Tempo
P
senza sord
Frantic intensity
gradually gaining control
senza sord.
poco f
Q

Aztec CM 12/2


sfz
f
mf
p

Aztec® CM 12/2


8va
S
cresc.


T
Calmato
mf
poco f
p


gradually more forceful
gradually more forceful
with underlying frenzy
with underlying frenzy
poco f
più f
U
8va
longer bows
ff
19


V
mf
f
sfz
8va
p
sub. f


W
non dim.
8/4/85 Rome
8/29/85 Whitestone
1/86 Yaddo

II


♩=52 Exalted
con sord.
molto p
niente
p
fp sfz
con sord.
con sord.
pp


A
serioso
poco f
p
serioso
poco f
pizz
arco
dim
dim.


con sord.
Serioso
p
poco f
mf
B
pizz
arco
cresc. poco a poco


C
8va
con sord.
f
più f
cresc..
cresc
espress.
più dim.
p
senza sordine


D
8va
sub pp, less intense, delicate
pp less intense, delicate
8va
ppp
ppp

Aztec® CM 12/2


E
Exalted
fff
f
più f
mf


fp
più p
molto p
con sordino
F
più p
pp
serioso
poco f
poco f
poco f
p
pp
serioso
poco f
con sord.
pizz
arco
mf
pizz
arco
mf


G
con sord.
poco f
pizz
arco
mf
p
espress.


con sord
more intense
pizz
arco
mf
più espress.
molto p


con sord.
♩=60 Recitativo, un poco rubato
III
senza sordino
molto vibrato

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cresc.
cresc.
♩=60
B
dramatic
poco f


poco f
p
C
Scherzo
dim..
ppp 34


poco f
poco f

Aztec® CM 12/2


E
cresc.


cresc.
poco f
f
più f


3
f
6


più f
poco rit.
ff
F
Trio, molto delicato
p
f


sul tast
sul tast.
ord.
41


mp
pp
poco f
G
Scherzo
mf
fp
p


più espress.


poco rubato


H
Slower, ad lib.
p
pp
I
Scherzo tempo
più f

poco f
poco f
poco f
poco f
un poco più mosso
more intensity
more intensity
more intensity
poco f
f
f
f
f
p
p
non dim.
p
p


J
Exalted
mf
f
più f
sub. p


più f
più f
poco p
cresc.
poco p
cresc.
cresc.
cresc.


K
Joyous
molto f
molto f
molto f
molto f
sub. p
sub. p
sub. p
p
sub. p
p


cresc.
poco f
p
f


fp
più f
cresc.


molto f
molto f
molto f
molto f
ff
ff
ff
ff
2/86
Yaddo