STRUCTURAL LEVELS AND TWELVE-TONE MUSIC: A REVISIONIST ANALYSIS OF THE SECOND MOVEMENT OF WEBERN'S *PIANO VARIATIONS* OP. 27[1]

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Introduction

During his lifetime, Webern's music, like Schoenberg's, was generally misunderstood and unappreciated outside avant-garde circles. Webern's later music, however, attracted greater attention from narrower circles after his death in 1945 and in the years following World War II. Scholarly studies of Webern's mature twelve-tone works began to appear with increasing regularity beginning in the 1950s, inspired by the younger generation of European composers who were devoted to the precarious and ultimately short-lived aesthetic of total or integral serialism.[2] In the post-war years, these young composers believed that they had discovered a figurehead in a conveniently dead and therefore defenseless composer into whose works they read what they considered to be precedents for total serialism in a nascent form.

The early analyses by European composers of Webern's serial works were motivated by a specific agenda that appealed to a particular compositional approach. On the North American continent, the aesthetic of total serialism never took root as it did in Europe, but Webern was likewise embraced, particularly by Milton Babbitt, in his seminal articles that demonstrate the mathematical group relationships inherent in the twelve-tone system (Babbitt 1955, 1960, and 1961). Babbitt's ground-breaking work on general properties of the twelve-tone system, including invariance under specific transformations, combinatoriality, and its permutational nature that distinguishes it from combinational systems, draws on the often symmetric and intervallically redundant rows of Webern to illustrate general properties of the twelve-tone system. He employs the row for Webern's *Concerto for Nine Instruments* Op. 24 to illustrate the theoretical relationship between hexachordal combinatoriality and trichordal derivation, noting that the combinatorial properties of the row are not actually engaged by Webern in the work (Babbitt 1955, 58–60). And to exemplify another theoretical issue of significance within the mathematical model of the twelve-tone system, namely the concept and principles of indexing in pairs of inversionally related row forms, he draws upon the row from the second movement of Webern's *Piano Variations* Op. 27, the subject of this study (Babbitt 1960, 252–57).

Although the total serialists in Europe and Babbitt in North America were attracted to Webern's twelve-tone technique for different reasons, they held in common a preoccupation with the serial aspect of the works, and both were motivated above all by their concerns as composers for how composers of new music could incorporate serialism into their writing—one through the aesthetic of total serialism, the other through a comprehensive and thorough understanding of all the resources of the twelve-tone system. This tendency has persisted, and, with only a few exceptions, most analyses of Webern's instrumental twelve-tone works do not probe much beyond the domain of the row and its transformations in a work.[3] I mention this preoccupation with the serial aspect of Webern's works at the outset to set up the framework for an alternative analytic approach. I have chosen the second movement of Webern's *Piano Variations* Op. 27 as a demonstration piece through which to illustrate the presence of pitch and pitch-class structures that transcend the serial deployment of pitch classes. The cohesiveness of these structures, through their contiguous appearances at the surface and non-contiguous projections over temporal spans of varying lengths, suggests a powerful integration between the surface and more remote structural levels.

Summary of canonic, registral and serial features of Op. 27/II

The *Piano Variations* Op. 27 (1936) is one of Webern's best-known works and is his only published work with opus number for solo piano.[4] The short second movement is usually described as a two-voice mirror canon, in which pairs of inversionally related row forms act as *dux* and *comes,* deployed at a temporal distance of an eighth note.[5] Each pitch of the *dux* is matched by a corresponding pitch in the *comes* that is intervallically equidistant in the opposite direction from a$\natural^1$, conferring a$\natural^1$ a special status as the axis of the registral symmetry.[6] The corresponding pairs of pitches from the *dux* and *comes* are almost always struck in immediate succession, and are separated from the preceding and succeeding pitches of each voice by rests, creating a texture that is dominated by the dyads drawn from two row forms rather than the ordered serial unfolding of each individual row form, thereby concealing the canonic procedure and relegating it to a level of precompositional abstraction.

Members of seven dyadic pitch-class pairs—{0,6}, {1,5}, {2,4}, {3,3}, {7,11}, {8,10} and {9,9}—are retained at corresponding order positions in each pair of row forms, a consequence of their shared index of inversion, 6 (mod 12). The row forms employed in Op. 27/II are summarized in example 1, a chart illustrating the inversionally related pairs of row forms using pitch-class integers, which are aligned by order position.[7] From the twelve pairs of inversionally related row forms that share the index number 6, Webern uses only the four given in example 1.[8] In his design, initial and terminal pitch classes are duplicated: the pitch classes that end one pair of row forms simultaneously begin the next pair, and only three pairs of pitch classes are activated in the initial and terminal order positions of the four paired row forms. These pairs of pitch classes are enclosed in boxes in example 1 with connecting lines to show the overlappings. This overlapping technique assists in the articulation of the binary form of the movement by enabling the first half of the movement to lead into the second, and also enabling each half to connect directly with its own repetition.

Each half then, deploys two pairs of inversionally related row forms, linking the first and last pitch classes of the row forms in a chain. The chaining of paired row forms can be expressed as the general formula in example 2a, which includes two variables, x and y—the

I10:	10	9	1	11	2	0	6	5	4	8	7	3
P8:	8	9	5	7	4	6	0	1	2	10	11	3
P3:	3	4	0	2	11	1	7	8	9	5	6	10
I3:	3	2	6	4	7	5	11	10	9	1	0	8
P10:	10	11	7	9	6	8	2	3	4	0	1	5
I8:	8	7	11	9	0	10	4	3	2	6	5	1
I5:	5	4	8	6	9	7	1	0	11	3	2	10
P1:	1	2	10	0	9	11	5	6	7	3	4	8

Example 1: Inversionally related pairs of row forms in Op. 27/II

initial pitch classes of the first inversionally related pair of row forms —and one constant k—the ordered pitch-class interval between the first and last pitch classes of the row (arbitrarily taken from the P form). Here the values of x and y are 10 and 8, respectively, and the value for k is 7. Example 2b shows the results of applying the formula with the values just given, returning the row-form labels from example 1.

Inversionally related pairs of row forms from any series can thus be chained. Upon selection of the initial row pair, the remaining row forms in the chain are generated according the initial pitch classes of the first row forms as well as the ordered pitch-class interval between the first and last pitch class of the row. Hence Webern's plan draws upon a general property of the twelve-tone system, and is not a result of the particular row.[9]

The row for the *Piano Variations* does not exhibit the kind of rigid internal symmetries and invariant properties commonly associated with Webern's rows, such as those found in the *Symphony,* Op. 21, the *Concerto,* Op. 24, the *String Quartet,* Op. 28, the *First Cantata,* Op. 29, and the *Variations for Orchestra,* Op. 30.[10] The symmetry of Op. 27's compositional design—both in terms of its external form and registral balance around $a\natural^1$—despite the absence of exceptional symme-

$$\left\|: \begin{array}{cc} I_y & P_{y-k} \\ P_x & I_{x+k} \end{array} :\right\|: \begin{array}{cc} P_y & I_{y+k} \\ I_x & P_{x-k} \end{array} :\Big\|$$

Example 2: a. Formula for row transformations isomorphic to those of Op. 27/II

$$\left\|: \begin{array}{cc} I_{10} & P_3 \\ P_8 & I_3 \end{array} :\right\|: \begin{array}{cc} P_{10} & I_5 \\ I_8 & P_1 \end{array} :\Big\|$$

b. Application of formula for row transformations in Op. 27/II

tries within the row itself, attests to the inadequacy of the commonly held view that the formal and registral symmetries in Webern's later works result from properties of the row. The symmetries in this movement result from the coupling of general properties of inversionally related row forms with canonic procedure. These properties can be highlighted through correspondences of register, rhythm, dynamics and articulation. Such correspondences are maximized in Op. 27/II through the canonic deployment of the row forms, as well as through linkage of dynamics with articulation; registral correspondences between row forms are achieved by polarity around the axis of symmetry, $a\natural^1$.

Two previous analyses of Op. 27/II

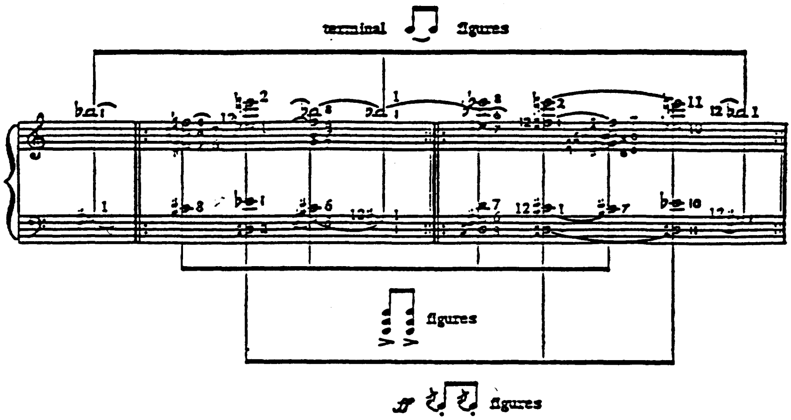
The second movement of the *Piano Variations* inspired two articles in the 1960s that illuminate some of the theoretical difficulties of a linear analytical approach, that is, an approach that examines hierarchized connections between non-contiguous pitches without explicit recourse to the serial organization of the work. Both articles are atypical of the extensive literature on Webern's twelve-tone music in that they explore non-row pitch relationships.

Peter Westergaard's analysis sets out to debunk the prevalent association between Webern's twelve-tone technique and the aesthetic premises of total serialism (Westergaard 1963). He points out that in a totally serialist approach, all parameters are treated independently, whereas in Webern's music pitch retains its traditional role as preeminent among the various parameters. The role of the other parameters is to differentiate pitches of hierarchic significance. Westergaard's hierarchic perspective was particularly innovative for its time; in serial contexts connections between contiguous row elements and the structural implications of row transformations were usually seen to override other considerations. Westergaard writes:

> Here, as in tonal music, *large scale intervallic structure is the basis for form;* textural details serve primarily to project or clarify this structure and thereby to create form. Here, as in tonal music, an analysis of form in terms of textural details without reference to the underlying large scale intervallic structure is misleading. Equally misleading are those analyses which assume that such an underlying intervallic structure is automatically provided for by the row scheme. (Westergaard 1963, 118–19) [emphasis mine]

Example 3 reproduces Westergaard's culminating graph of the movement, which, in his words, "indicates the structure of the movement as a whole." Before presenting this reductive graph, Westergaard examines individually the strands that are joined by beams in example 3. He devotes considerable attention to the four texturally distinctive pairs of successive three-note simultaneities, all members of set class 3–5:[0,1,6], that appear in mm. 3–4, mm. 8–9, m. 15 and mm. 19–20, stating that "the harmonic shape of the movement is concentrated in the successive appearances of this figure" (Westergaard 1963, 116). In Westergaard's graph the four pairs of 3–5 trichords are verticalized, duplicated pitches are removed, and they are connected to each other by the higher of the two beams below the staves. Westergaard cites contextual reasons for isolating these figures, reasons that pertain to deviations from rhythmic, metric and dynamic patterns that have been set up in the piece. Each of the 3–5 trichord pairs disrupts at least one aspect of the process of the piece, and thereby generates energy and activity within an overall static pitch environment.

The remaining two beams in Westergaard's analysis connect recurrences of the initial b♭^{2}–g♯ dyad and the recurring grace-note figures (at the *fortissimo* dynamic level), indicated by his annotations to the graph. His remarks about this graph center upon the regularity of order positions occupied by the constituents of each beamed group (indicated by the integers beside each pitch), with the exception of the final d♮–e♭^{1}–e♭^{2}–e♮^{3} sonority, but he contends that the coincidence with order positions is not responsible for the large-scale connections: the large-scale connections, in Westergaard's view, are determined by non-pitch parameters (dynamics, articulation, etc.) that support the recurring pitch complexes.

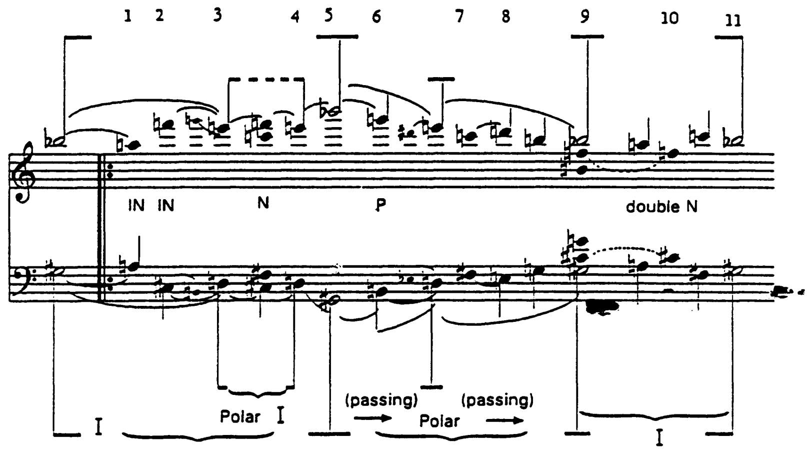


Example 3: Westergaard's analysis of Op. 27/II
(Used by permission)

As suggestive and insightful as Westergaard's analysis is, it does not reveal the functional interaction of the three structural strata; that is, it does not clarify how the beamed groups relate to each other. Each beamed group is represented as an independent strand entirely disassociated from the others. The methodology behind the removal of some pitches in the reduction, and the role of the axial pitch, a♮^{1}, which does not appear in his graph, are not explained.

Roy Travis's analysis of the movement responds to Westergaard's analysis of three years earlier (Travis 1966). It attempts to apply Schenkerian theory, invoking Felix Salzer's analyses of Bartók, Hindemith and Stravinsky from *Structural Hearing* as a model (Salzer 1962). Travis views the movement as a prolongation of a dissonant sonority, the initial b♭^{2}–g♯ dyad stated at the outset, which he designates the "tonic dyad." The prolongation is achieved through alternation between the "tonic dyad" and what he calls the "polar dyad," e♮^{3}–d♮, first encountered in m. 3. Travis's analysis of mm. 1–11, the first half of the binary movement is shown in example 4.[11]

Like Westergaard, Travis downplays the role of the row in determining pitch relationships because the paired dyads do not belong to a single row form. On this basis he abandons the notion of following the row as a "melodic progression" and considers the possibility of direct melodic connections between adjacent dyads. He then abandons this idea because of the registral disjunctions, and arrives at the analysis excerpted in example 4.



Example 4: Travis's analysis of Op. 27/II, mm. 1–11 (renotated)
(Used by permission)

A significant feature of Travis's graph is his normalization of wide registral leaps into close melodic successions. Each normalized melodic succession is then shown to prolong the "tonic dyad" (b♭^{2}–g♯) or "polar dyad" (e♮^{3}–d♮) through a stepwise (neighbor or passing) melodic connection. For example, his representation of the repeated a♮^{1}s in m.1, immediately following the opening dyad shows the two a♮s displaced from their original register and marked as incomplete neighbors to b♭^{2} and g♯. Travis seeks to verify that the Schenkerian precepts of stepwise melodic connection and arpeggiation are applicable to the foreground level in the piece.

Travis's analysis is provocative, but difficult to accept on several counts. First, there is the uncritical adoption of the principle of stepwise connection in a non-tonal context. Travis's registral normalization works at cross-purposes with the registral disjunctions that shape the surface of the music. Second, the registral normalization obliterates long-range registral connections that may be significant. This analysis, however, is interesting in the present context in that it offers another view of the piece that is not dependent upon row transformations or other aspects of twelve-tone technique.

A Revisionist Analysis of Op. 27/II

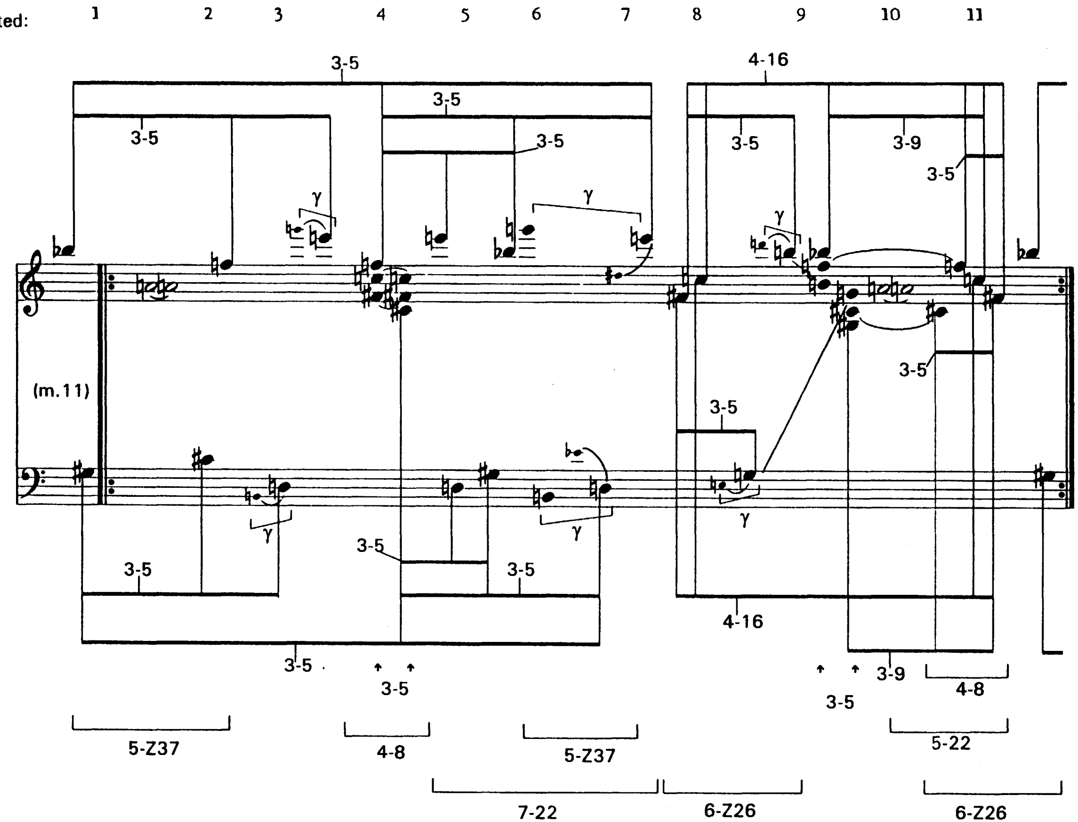
The analytic approach offered here is revisionist in its circumvention of references to row deployment and transformations. Like the analyses by Westergaard and Travis, it seeks to demonstrate pitch connections that do not depend on the work's serial organization, but there the similarities with Westergaard's and Travis's work end. In the main analytic graph, given in examples 5a and 5b, all pitches are shown on two staves in their sounding register. The following discussion will focus on the main graphic analysis shown in examples 5a and 5b, while also making reference to subsidiary examples to follow.

In Op. 27/II a predominantly two-voice texture results from the dyadic pairs discussed earlier, which evince an upper and a lower voice; the pitches contributing to each voice are connected by registral assignment, not by their positions in the row forms. The notion of a two-voice texture breaks down at four points—in mm. 3–4, mm. 8–9, m. 15 and mm. 19–20—which are texturally equivalent to each other by isolating pairs of inversionally equivalent trichords from set class 3–5:[0,1,6]; each trichord is presented as a simultaneity, and the grouping of these sonorities into pairs temporarily disrupts the two-voice texture by interjecting these four moments of greater density. It will be shown, however, that the highest and lowest pitches from each pair of these trichordal sonorities connect with previous and subsequent pitches of the two-voice framework in significant ways. These four pairs of sonorities, which interrupt the surface progression of the two registral voices, are connected with the progression of each voice at a deeper level. The progression of the two structural voices—behaving independently of the serial plan by observing registral proximity and not serial ordering in determining contiguity—is interrupted by a return to the control exerted by the serial organization since the 3–5 sonorities, the only simultaneities in the work, originate as row segments. Still, the sonorities occur in pairs that are equivalent under different transformations in each case; therefore, even though a consequence of the serial plan outlined in example 1, the set class of the union of the paired trichords is unique in each case. At least three of these resultant set classes interact in significant ways with other harmonic features of the work that do not originate directly with the serial organization.

Beams are employed to connect members of pitch-class sets projected over varying temporal spans. Because of the pairing of pitches equidistant from a♮^{1}, all beamed structures come in pairs, one in the higher register and one in the lower. As mentioned, registral proximity is the main criterion for participation in the projection of a large-scale pitch-class set over the longest temporal spans, but this does not depend on nor prescribe stepwise or near-stepwise motion. The longest beams show the projection of pitch-class sets whose constituent pitches are enclosed within a total registral span of less than an octave (the 3–5 projections in mm. 1–6, mm. 12–17, mm. 18–21), with the exception of the pair of 4–16:[0,1,5,7] tetrachords in mm. 8–11 and

Prime forms of set classes cited:

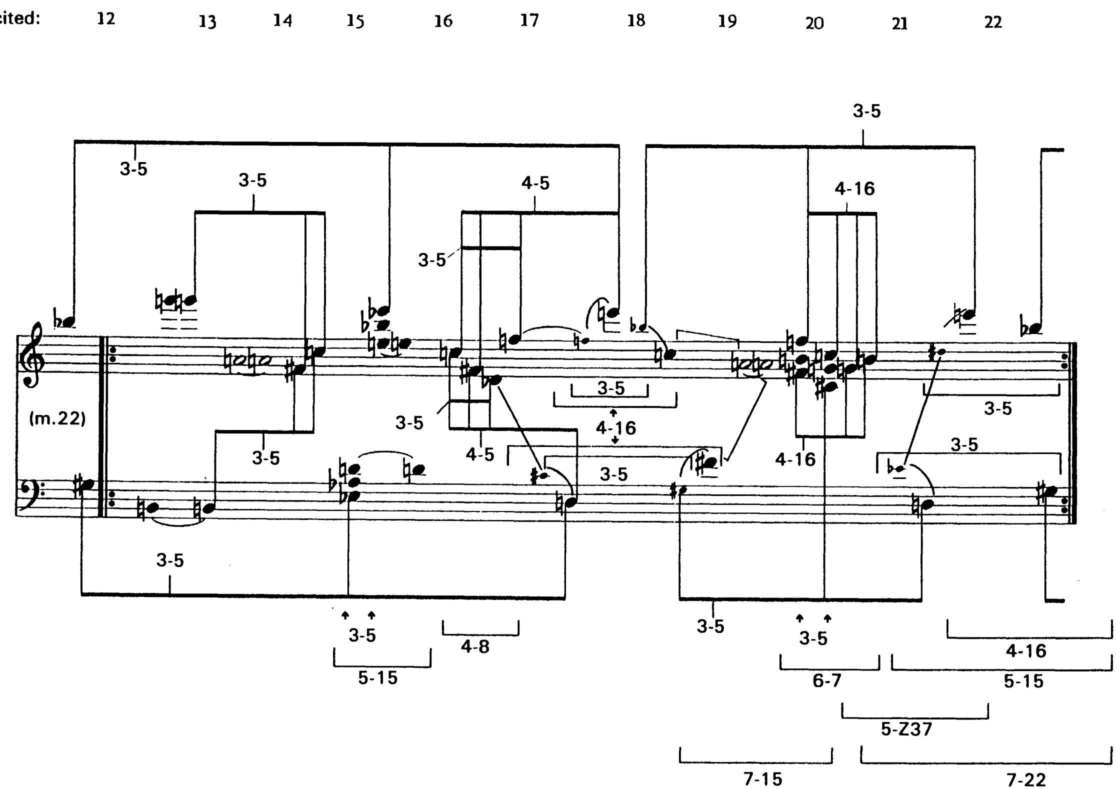
3-5	[0,1,6]
3-9	[0,2,7]
4-8	[0,1,5,6]
4-16	[0,1,5,7]
5-22	[0,1,4,7,8]
5-Z37	[0,3,4,5,8]
6-Z26	[0,1,3,5,7,8]
7-22	[0,1,2,5,6,8,9]



Example 5a: Op. 27/II: analytic graph; mm. 1–11. Copyright 1937 by Universal Edition. Copyright renewed. Used by permission of European American Music. Distributors Corporation, sole U.S. Canadian agent for Universal Edition.

Prime forms of set classes cited:

3-5	[0,1,6]
4-5	[0,1,2,6]
4-8	[0,1,5,6]
4-16	[0,1,5,7]
5-15	[0,1,2,6,8]
5-Z37	[0,3,4,5,8]
6-7	[0,1,2,6,7,8]
7-15	[0,1,2,4,6,7,8]
7-22	[0,1,2,5,6,8,9]



Example 5b: Op. 27/II: analytic graph; mm. 12–22

the 3–5 trichords projected within them in mm. 7–8. Furthermore, in the three large-scale projections of 3–5 trichords mentioned above, the order of entry of the second and third pitches reveals that subsequent pitches are all at a distance of either five or six semitones from the initial pitch, distinguishing these intervals in determining boundaries of large-scale gestures.[12]

Projections shown closer to the surface, that is, with shorter beams spanning closer temporal distances, may involve greater spatial distances between pitches, as closer temporal intervals strengthen the connections between beamed pitches; see, for example, the pair of 3–5 trichords ($g\natural^3$–$f\sharp^1$–$c\natural^2$ and $B\natural$–$f\sharp^1$–$c\natural^2$) in mm. 12–14, and the pair of 4–5:[0,1,2,6] tetrachords ($c\natural^2$–$f\sharp^1$–$f\natural^2$–$e\natural^3$ and $c\natural^2$–$f\sharp^1$–$d\flat^1$–$d\natural$) in mm. 16–17. Smaller-scale beamed collections, even when they extend the limitation in range imposed on larger-scale collections, indicate connections between near-contiguous pitches at the surface, and highlight significant set-class parallelisms between contiguous and near-contiguous pitches at the surface and at deeper structural levels. As mentioned, some smaller-scale beams connect pitches that are adjacent in their respective voices, but are not all members of the same row form; this occurs in mm. 4–5, m.7, mm. 10–11, mm. 16–17 and mm. 19–20.

The fixed registration of pitches in the movement imposes further contextual associations upon specific pitches, or more precisely, pairs of pitches, that influence segmentation. For example, the pitches that initiate the two-voice framework, $b\flat^2$ and $g\sharp$, are associated in most of their statements in the piece with the initiation of large-scale projections (m. 0, m. 11, m. 18, m. 22); in two cases, where they are embedded within the 3–5 sonorities in mm. 8–9 and m. 15, their initiating function is withdrawn. The initiating function of these pitches even carries through their statement in m. 11, where their twofold role is to begin the repetition of the first part and to introduce the second part; this is reflected in the analytic graphs of examples 5a and 5b. Similarly, when the same pitches appear in the final measure of the piece, their function in the first instance is to begin the repetition of the second part of the binary form, and in the second instance, even though they are the last pitches to sound, their initiating function lingers—hence the irony of this humorous ending. Finally, although perhaps obvious, it is also worth mentioning that the wide registral span between these pitches suggests that they can not belong to a single structural voice, regardless of the notated articulative slur.

The initiating function of the $b\flat^2$–$g\sharp$ dyad is matched by the terminating function of another dyad, $e\natural^3$–$d\natural$, in mm. 3–4, m. 17 and m. 21, where these pitches terminate in each voice one or more large-scale projections initiated by $b\flat^2$ and $g\sharp$. At each of these points, the terminal pitch is preceded by a different grace-note figure, about which more will be said later. At this point, it is sufficient to assert that in the context of this piece, grace-note figures are associated rhythmically and motivically with the terminal pitches of beamed groups in all but one of the six occurrences of grace notes; the exceptional case is found in m.18, where the pitches of the grace notes, b♭^{2} and g♯, are those associated with initiation of a large-scale projection; this function, because it is so strongly linked with this pair of pitches and is not bound by rhythmic or motivic associations, usurps the rhythmic association of grace-note figures with embellishment of terminating pitches.

The primary initiating and terminating functions of the two pitch dyads just discussed and the association of grace-note figures with terminal pitches of large-scale projections, except when the pitches of the grace notes themselves are associated with initiation, explains much of the segmentation in the analytic graph, but the analysis is by no means simply the fallout of the registration design. For example, when the two dyads associated with initiation and termination, b♭^{2}–g♯ and e♮^{3}–d♮, appear in succession in mm. 4–5, with no intervening material, they relinquish their earlier function. Nevertheless, it must be acknowledged that the fixed registration influences the segmentation to a significant extent. For example, because of its primary function as the center of the registral design, the axial pitch a♮^{1} remains neutral with regard to participating in the structural voices, and is excluded from pitch-class set projections; but the axial pitch can join with surrounding pitches to form pitch-class sets that include all sounding pitches within given spans, and, in some cases, enhance other relationships borne out by larger-scale projections.

We turn now to a more detailed analytical discussion. I will begin with the first set of horizontal beams above and below the staves in example 5a, connecting b♭^{2}–f♮^{2}–e♮^{3} in the upper staff and g♯–c♯^{1}–d♮ in the lower staff, in mm.1–3, projecting two 3–5 trichords. The beamed pitches are associated on the basis of their registral proximity, and the same pitches reappear as beamed collections in mm. 4–5, mm. 4–6 and once again spanning all of mm. 1–6, the latter in the original ordering of m. 1–3. These four recurrences of the same collections over varying spans of time between mm. 1–6 suggest a stratified or levelled organization. In discussing this organization, I will adopt the terms "foreground" and "middleground" in a limited sense: to reflect the relative closeness or remoteness of any beamed groupings in the analysis to the musical surface. In Op. 27/II, the beamed pairs of 3–5 trichords in mm. 1–6 constitute at least two middleground levels, the deeper one shown by the longest beams above and below the staves extending from mm. 1–6. These middleground 3–5 trichords intersect at their middle pitch with the highest and lowest pitches of the foreground 3–5 simultaneities that appear at mm. 3–4, the first of the four paired sonorities that are so distinctive as the only simultaneities in the movement. (These are identified by arrows above the set name 3–5 at four locations below the graph.) Set class 3–5, because of its position as a row segment of special status (the movement's only segmental simultaneity) and its significance in large-scale projections, plays a pivotal role in providing "three-way" contact between the musical foreground, middleground and the row itself.

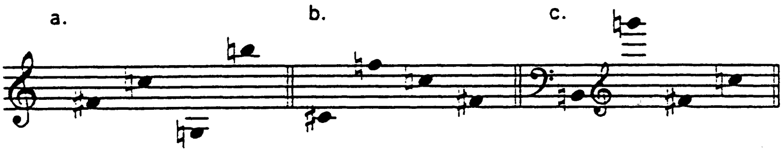
Example 6 isolates the pitches of the first pair of beamed 3–5 trichords (mm. 1–3), and shows them with the axial pitch $a\natural^1$, which, as explained above, does not interact with the beamed collections in any of its four appearances in the main graph of example 5. However, as example 6 illustrates, when the beamed 3–5 trichords, $b\flat^2$–$f\natural^2$–$e\natural^3$ and $g\sharp$–$c\sharp^1$–$d\natural$, are combined with the axis of symmetry, $a\natural^1$, a 4–8:[0,1,5,6] tetrachord is formed in each register, and the total complex of pitches forms a member of set class 7–22:[0,1,2,5,6,8,9]. Set class 4–8 also declares its prominence in the foreground as the set class formed by the union of the first pair of 3–5 sonorities at mm. 3–4 ($f\sharp^1$–$c\natural^2$–$f\natural^2$ and $c\sharp^1$–$f\sharp^1$–$c\natural^2$). These four pitches return in mm. 10–11 at the end of the first part of the binary form, here stated consecutively, but shown in the graph as the union of two very small-scale projected 3–5 trichords identical in pitch to the simultaneities in mm. 3–4. Set class 7–22 recurs in two locations of formal significance: the last seven sounding pitches before the termination of the middleground 3–5 trichords in m. 6, and once again as the last seven sounding pitches of the movement, as shown in the selection of pitch-class sets given below the graphs of examples 5a and 5b. Moreover, its complementary set class, 5–22:[0,1,4,7,8], sounds as the final pentachord at the end of the first half of the movement, formed by the 4–8 tetrachord just discussed in combination with the axial pitch $a\natural^1$ that precedes it. The complement relationship between these two collections, which are associated through their role in articulating boundaries of large-scale projections, is literal—7–22:{2,3,4,7,8,10,11} 5–22 and {5,6,9,0,1};but the aggregate completed by these literal complements is not an outcome of the serial plan. Each of the collections results from the union of row segments comprising identical order positions from each of the two unfolding row forms. But the 7–22 collection includes pitch classes from two row-form pairs, traversing the boundary between the I10/P8 pair and the P3/I3 pair, while the 5–22 collection is entirely drawn from the P3/I3 pair. The recurrences of 4–8 and 7–22 (and its complement) just discussed demonstrate their independence from the serial process, and point out further congruities between foreground and middleground.

Example 6: Op. 27/II, mm. 1–3: beamed pitches (from analytic graph) plus axis of symmetry a♮[1]

With the obvious exception of the first two pitches to sound at the outset of the movement, b♭[2] and g♯, none of the initial or terminal points of the larger-scale projections of the 3–5 trichords that have been discussed coincide with beginnings or endings of row forms. The same is true of all the beamed collections and the framing pitch-class collections discussed above. The overlapped beginnings and endings of the paired row forms that supply the serial girders underlying the piece are independent of the long-range pitch connections shown in this analysis. That the initiation and completion of row forms does not prescribe the connections between pitches that have been discussed, however, does not mean that there is no interface between the serial organization and the types of structural features I am considering here. Indeed, the dyadic pairs of pitch classes that emanate from the combination of serial and compositional design are reflected in the projected set classes that appear in my analysis, and behave identically within the paired projections. The inclusive sets that are given below the analytic graph generally serve a formal function that supports the middleground projections, but also correspond with well-defined dyadic groupings in the movement.[13]

I have asserted that e♮[3] and d♮ define the terminal points of the middleground 3–5 trichords that are projected from mm. 1–3 and mm. 3–6, as well as the larger-scale projections encompassing mm.1–6 as a whole. The grace-note figures that decorate each of these terminal points in mm. 2–3 serve their traditional ornamental function, that of delaying the arrival of a pitch of higher structural significance.[14] The pitches of the grace-note figures at mm. 2–3, g♮[3] and B♮, constitute the highest and lowest pitches of the movement, but are reduced in structural status because of their lack of durational weight.[15] The grace-note figures punctuate an important juncture, the termination of the first middleground 3–5 trichord, by asserting an important secondary motivic figure, the minor third, which I have labelled *gamma* (γ). The terminal pitches e♮^{2} and d♮ of the deeper middleground 3–5 trichords in m. 6 are also embellished by the same *gamma* motive, this time expanded in duration. The grace notes d♯^{2} and e♭^{1} that are interpolated within these *gamma* motives coincide with the overlapping of the first two pairs of row forms (see example 1), and also with the first completion of the aggregate. By withholding pitch class 3 until the completion of the first two row forms and the aggregate, that pitch class is given preeminence which, though only suggested at this point, is later confirmed at m. 15. Any sense of completion on pitch class 3 in m.6 is thwarted, whereas a palpable degree of closure is achieved by the middleground termination of the large-scale 3–5 trichords on e♮^{3} and d♮.[16] The integrity of the expanded *gamma* motive subsumes the junctions of row forms and aggregate completion, a convincing demonstration that closure and coherence are determined contextually and not by reference to the external system of row relationships. The termination of the passage at m. 6 is further strengthened by the framing of the passage by 5–Z37:[0,3,4,5,8] pentachords, a symmetry which is again independent of the rigorous registral symmetries of the movement.[17] The two 5–Z37 collections, {5,8,9,10,1} and {11,2,3,4,7}, do not occupy identical order positions in their respective row forms; moreover, while the former is the direct outcome of the initial pairing of the row forms I10 and P8, the latter is formed by pitch classes from two row-form pairs. In other words, though they are not generated by analogous serial means, they nevertheless provide a compelling contextual parallelism. The transformation(s) by which the two pentachords are related, T_6 (or T_0I), is not among the transformations that relate the components of the chains of row forms (see example 2), a further demonstration of the independence these equivalences hold from the work's serial plan.

The pitches that initiate the beamed segments from mm. 7–11, f♯^{1} and c♮^{2}, introduce as adjacencies the two pitch classes that were excluded from the union of the framing 5–Z37 collections enclosing the middleground events discussed from mm. 1–6, and were first sounded in the inner parts of the 3–5 simultaneities in mm. 3–4. Because of their registral proximity to the axial pitch a♮^{1}, f♯^{1} and c♮^{2} are shared by the two structural voices in a pair of interlocking 3–5 trichords. The terminal point of each 3–5 trichord is embellished by a grace-note figure, which, like the earlier grace-note figures, reintroduces the *gamma* motive. The pitch classes of the grace-note figures here at m.8 are the same as those in mm. 2–3, with an exchange of register and structural rank; that is to say, the B♮–d♮ dyad of m. 2 is transferred to the upper register as d♮^{3}–b♮^{2} in m. 8, while the g♮^{3}–e♮^{3} dyad of m. 3



Example 7: Op. 27.II: 4–8 tetrachords
a. mm. 7–8
b. mm. 10–11
c. mm. 12–14

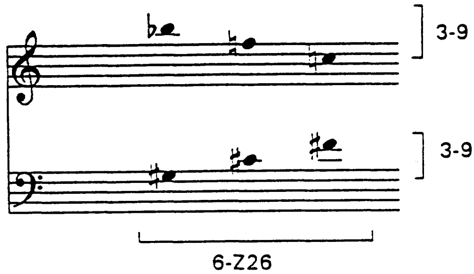
is transferred to the lower register as e♮–g♮. In mm. 2–3, B♮ and g♮^{3} decorated the structural pitches d♮ and e♮^{3}; in m. 8 the roles are reversed so that b♮^{3} and g♮ are now the structural pitches, decorated by d♮^{3} and e♮ respectively.

The union of the unfolded 3–5 trichords in mm. 7–8 just discussed produces a 4–8 tetrachord (f♯^{1}–c♮^{2}–g♮–b♮^{2}), the same set class formed by the union of the two 3–5 simultaneities in mm. 3–4. These pitches are extracted in example 7a. The invariant pitches f♯^{1} and c♮^{2} that appear in each of these 4–8 tetrachords are associated with set class 4–8 throughout the movement. This can be observed in the tetrachord formed by the union of the beamed 3–5 trichords two measures later in mm. 10–11, which also holds pitches f♯^{1} and c♮^{2} invariant, and forms a 4–8 tetrachord, shown in example 7b (and below the graph in example 5a). This 4–8 tetrachord replicates the pitches of the earlier 4–8 tetrachord formed by the union of the vertical 3–5 sonorities in mm. 3–4, whose pitches appear projected linearly in mm. 10–11, as shown by the interlocking beams. In the opening of the second half of the piece, the union of the beamed 3–5 trichords beginning on B♮ and g♮^{3} also forms a 4–8 tetrachord with the same pitch classes as that of mm. 7–8. See example 7c.

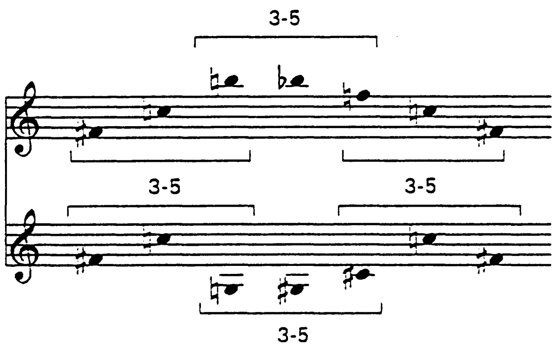
The pair of vertical 3–5 simultaneities in mm. 8–9 inaugurates another structure that is analogous to that beginning in mm. 3–4, this time a pair of 3–9:[0,2,7] trichords—b♭^{2}–f♮^{2}–c♮^{2} in the upper register, and g♯–c♯^{1}–f♯^{1} in the lower register. (The analogy between these 3–9 trichords and the beamed 3–5 trichords beginning at mm. 3–4 lies in the placement of their initial pitches, the registral extremes in the foreground 3–5 simultaneities.) The innermost pitches of the 3–5 sonorities, b♮^{1} and g♮^{1}, relate to the terminal point of the previous beamed 3–5 trichords by octave displacement, shown by the diagonal lines on the graph of example 5, suggesting the presence of a larger structure that incorporates both the projected 3–5 and 3–9 trichords. The outermost pitches of the 3–5 sonorities restate the opening pitches of the movement, b♭² and g♯, and proceed at the middleground in the projection of the 3–9 trichords to f♮² and c♯¹ respectively, recalling the projection of the 3–5 trichord from mm. 1–3. The larger structure alluded to, embracing both the projected 3–5 and 3–9 trichords from mm. 7–11, refers to the pair of 4–16 tetrachords as shown by the longer beams above and below the staves in example 5a, framed symmetrically by their initiation and completion with the f♯¹–c♮² dyad.

The significance of the beamed 3–9 trichords derives from their connection with the 3–5 simultaneities, from which their initial and middle pitches originate, and from the set class that results from their union, hexachord 6-Z26:[0,1,3,5,7,8]. Example 8 isolates the pitches of the projected 3–9 trichords, and shows the 6–Z26 hexachord. At the same time, the six pitches in example 8 also identify those of the union of the larger 4–16 projections in mm. 7–11. Furthermore, set class 6–Z26 is significant in the foreground as well by articulating the entire passage from mm. 7–11, including the b♭¹–g♯ dyad that marks the beginning of the restatement of the first half of the piece, through the first six and last six sounding pitches. (See example 5a.) Like the pair of 5–Z37 pentachords discussed earlier, this pair of 6–Z26 hexachords, {11,0,2,4,6,7} and {5,6,8,10,0,1}, is equivalent under the transformation T_6 (and T_0I). In this case, however, the equivalence relation may be more tightly integrated with the underlying serialism than the former, since both hexachords result from the same pair of row forms; each is generated by the union of two segmental trichords (from different set classes), one from each row form. Nevertheless, their equivalence under T_6 and their generation from the projected 3–9 trichords (not a segmental set class) suggest that their significance extends beyond the purview of the row.

All pitches connected by beams from mm. 1–6 at the middleground are recurrences of the same six pitches beamed in mm. 1–3, comprising large-scale projected 3–5 trichords in each register: b♭²–f♮²–e♮³ and g♯–c♯¹–d♮ and their two reorderings. The new pitches that enter into the middleground from mm. 7–11, taken in their order of entry (regardless of the different middleground levels that are indicated), form a sequence of three overlapping 3–5 trichords in each register (example 9). Once again, set class 3–5 takes a significant part in unifying both the foreground and middleground, thus forging a link between structural levels. Two symmetries, unrelated to the symmetries imposed by the serial method, stand out in example 9: first, the uniform distribution of the three 3–5 collections among the seven pitches in each registral strand; and second, the palindromic symmetry formed by the surrounding of the central 3–5 collection with retrograde forms of the same pitch dyad, f♯¹–c♮², which is shared by both



Example 8: Op. 27/II, mm. 8–11: union of 3–9 trichords (also union of projected 4–16 tetrachords, mm. 7–11)



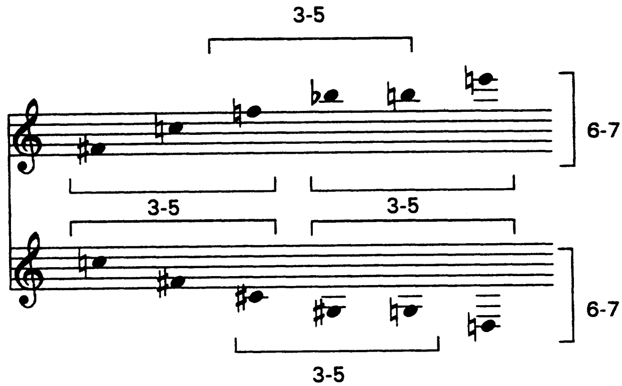
Example 9: Op. 27/II, mm. 7–11: middleground pitches by order of entry

voices. The palindrome has the effect of clearly demarcating the onset and closure of the passage from mm. 7–11, which is situated between passages (mm. 1–6 and mm. 12–17) that are demarcated by the initiating and terminating functions of the pitch dyads discussed earlier. At the end of the first half of the piece, m. 11, ten of the twelve pitch classes have been represented in the middleground; only A♮ and its tritone counterpart, E♭, have not appeared. E♭ will enter the middleground in the second half of the piece at a strategic moment, and in two registers ($e\flat^{3}$ and e♭), but as the axis of symmetry, $a\natural^{1}$, remains detached and excluded from any of the large-scale projections, as previously discussed.

In examining the set classes projected in the middleground for the entire first half of the movement once more, another simple symmetry becomes apparent. Example 10 presents all of the pitches that participate in middleground projections now in their registral, rather then chronological order—ascending in the upper register and descending in the lower register, so as to align the fixed pitch pairs. This new order places pitches from each of the two main formal segments (mm. 1–6 and mm. 7–11) beside each other as adjacencies, but, interestingly, the six pitches in each registral strand again partition themselves into two disjunct 3–5 trichords, shown adjacent to each other in the example. A third 3–5 trichord is also found overlapping the disjunct trichords, and reveals the saturation of the line by set class 3–5. (Only one trichord formed by adjacent pitches in each line is not a member of set class 3–5—the c♮^{2}–f♮^{2}–b♭^{2} and f♯^{1}–c♯^{1}–g♯ trichords of set class 3–9.) The total pitch-class content of each registral strand is a member of set class 6–7:[0,1,2,6,7,8], which later returns at the foreground in the union of the last of the four pairs of 3–5 simultaneities in mm. 19–20. (See example 5b.) As we have seen, such shared set classes between pitches that are connected at deeper structural levels as well as at strategic foreground positions bestow coherence that complements, and at times transcends the coherence afforded by the serial method.

I will now briefly discuss the second half of the movement. Its structural framework begins with the b♭^{2}–g♯ dyad just before the repeat sign; through its association with the opening of the movement and the repetition of the first half, this dyad has come to imply the initiation of a large-scale projection in each register. (See example 5b.) These pitches now initiate a new pair of large-scale 3–5 trichords, b♭^{2}–e♭^{3}–e♮^{3} and g♯–e♭–d♮, whose boundary pitches (b♭^{2} and e♮^{3}, g♯ and d♮) reproduce those of the earlier large-scale projections of 3–5 trichords in the first half, substituting a new interior pitch. The terminal pitches of the paired 3–5 trichords projected in mm. 11–17 are again embellished by grace notes.

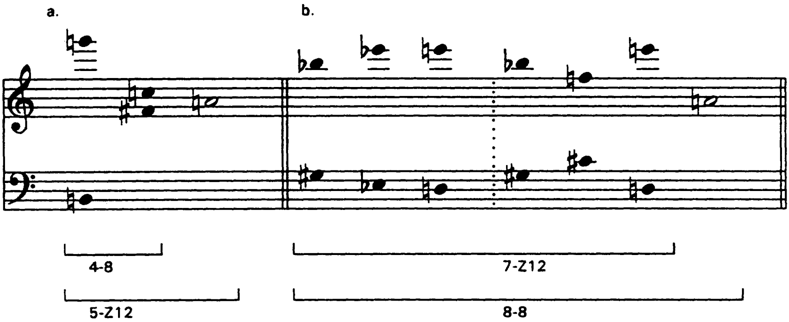
The interior pitches in each of these large-scale linear 3–5 trichords, e♭^{3} and e♭ in m. 15, are simultaneously the highest and lowest pitches in the third of the four pairs of 3–5 simultaneities, whose union forms a 5–15:[0,1,2,6,8] pentachord. This illustrates the interaction between structural levels, since the foreground 3–5 simultaneities (e♮^{2}–b♭^{2}–e♭^{3} and d♮^{1}–a♭–e♭) replicate precisely those pitch-class sets that are in the process of being projected at the middleground at their midpoint. The confluence of this concrete meeting of the foreground and middleground, the first (and only) middleground appearance of E♭, the tritone-counterpart of the other singleton dyad, and the climax of the movement are mutually supportive and symbolic; they are a convincing demonstration of the collaboration of structural levels, serial framework, and contextuality. The formal significance of the



Example 10: Op. 27/II, mm. 1–11: large-scale 6–7 hexachord in each register

5–15 pentachord, {2,3,4,8,10}, that appears in the foreground and is projected by the 3–5 trichords in the middleground from mm. 11–17, is reinforced by the return of the same pitch classes at the close of the movement in the final five sounding pitches. (See example 5b again.)

The surface registral disjunctions at the beginning of the second half of the binary form are the widest and most dramatic of the movement, preparing for the climactic *fortissimo* 3–5 simultaneities at m. 15 that were just discussed. As the highest and lowest pitches in the fixed spectrum of pitches symmetrically positioned around a♮^{1}, g♮^{3} in the upper register and B♮ in the lower register seem disconnected from their surroundings by their wide registral distance from the axis of symmetry, which is sounded immediately following the registral extrema in mm. 12–13, thereby articulating the center and boundaries of the entire registral space in immediate succession. Indeed, the analytic graph reflects this disjunction in that it shows the beamed 3–5 trichords emanating from these registral extrema (g♮^{3}–f♯^{1}–c♮^{2} and B♮–f♯^{1}–c♮^{2}) to be entirely disconnected from the highest-level beams. Coherence, however, is provided by the f♯^{1}–c♮^{2} dyad, which was included in two statements of tetrachord 4–8:{0,1,5,6} in mm. 1–11 (both generated by the union of a pair of 3–5 trichords), and by a large-scale motivic connection through the *gamma* motive previously discussed, which will be treated in further detail below. A unique occurrence pertaining to g♮^{3} is that it is the only pitch in the movement, aside from the axial a♮^{1}, to bear immediate repetition (also with a change of hands, like the repetitions of a♮^{1}). The immediate repetition differs from the a♮^{1} repetitions, however, because of the change of



Example 11: Op. 27/II, mm. 12–14 and mm. 11–17: complement relations

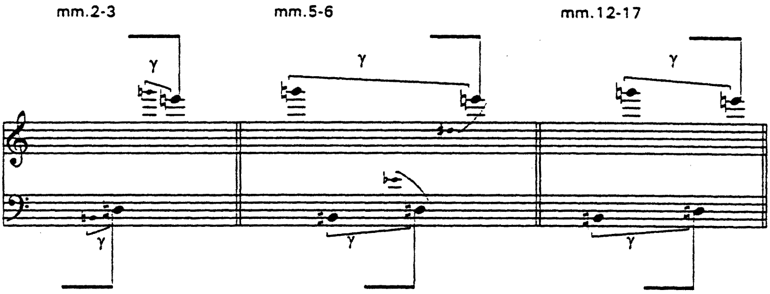
dynamic level on the second iteration, which clarifies that the two g♮³s belong to separate dyads.

Example 11 attempts to expose hidden connections based on set-class complementation between the apparently disjointed pair of projected 3–5 trichords in mm. 12–14 and the larger-scale projections of 3–5 trichords in the second half of the movement. The union of the beamed 3–5 trichords in mm. 12–14 forms a 4–8 tetrachord, sharing the invariant f♯¹–c♮² dyad with the earlier 4–8 tetrachords already discussed. This is shown in example 11a, which aligns the paired pitches from the registration design. The 4–8 tetrachord {6, 7,11,0} excludes the axial a♮¹, which is struck within in the ongoing 3–5 projections; when the a♮¹ is included, thereby encompassing all sounding pitches from the onset to the completion of the projections, a 5-Z12:[0,1,3,5,6] pentachord results. Example 11b shows the pitches of the two pairs of large-scale 3–5 trichords projected from mm. 11–17 and mm. 18–22. The union of these projections produces a 7–Z12 collection, the literal complement of the 5–Z12 collection in example 11a, while the inclusion of the axial a♮¹ results in an 8–8:[0,1,2,3,4,5,7,9] collection, the literal complement of the 4–8 collection in example 11a. These relationships are more than casual or abstract; they link at least three structural levels, including the foreground (5–Z12) and two middleground levels (4–8, 7–Z12), and they reveal a connection between the seemingly disconnected configuration in mm. 12–14 and the larger span of the second half of the movement that is not disclosed in the analytic graph. Also noteworthy is the Z-relation shared by 5–Z12 with set class 5–Z37, whose significance was previously discussed.

Returning now to the registral extrema, g♮³ and B♮ first appeared in the grace-note figures of mm. 2–3, and set up a motivic connection (*gamma*) that, as mentioned earlier, returned in mm. 5–6. (See example 5a.) These occurrences are shown again in example 12, and are followed by the even more expanded recurrences from mm. 12–17, in which the registral extremes are once again shown as motivically connected to the terminal points of the large-scale projected 3–5 trichords. While the large *gamma* motives from mm. 12–17 may be difficult to grasp, because of their extensive length and the interception by the important middleground E♭s in m. 15, they are analytically significant because, taken along with the earlier, more straightforward manifestations of the *gamma* motive, they reveal a progressive lengthening of the distance between its onset and completion. This progressively increasing distance between the pitches that recur in this motivic relationship is a design feature separate from the row scheme: though the row scheme fixes seven pitch-class dyads, it does not determine what kind of temporal relationships the dyads might form with one another. The first appearances of the *gamma* motive in mm. 2–3 occur between contiguous pitches in the foreground, and also mark the first statement of row adjacences as surface adjacencies, a practice followed in each grace-note figure in the movement. The next occurrences of the *gamma* motive between the same pitches, in mm.5–6, should be classified as middleground events, since they involve noncontiguous pitches, subsuming the grace notes that ornament the terminal pitch of each large-scale projection. The third occurrences, in mm. 12–17, subsume a larger number of pitches, so the motivic relationship is less audible; nevertheless, the association with the previous statements of the motive formed with the same pitches make a plausible connection that further integrates the recondite measures following the first repeat sign with other features of the work.

The pitches of the overlapping 3–5 trichords shown by the beams in mm. 16–17 in example 5b, c♮^{2}–f♯^{1}–f♮^{2} and c♮^{2}–f♯^{1}–d♭^{1}, form a 4–8 tetrachord, identical in pitch with the 4–8 tetrachords in mm. 3–4 and mm. 10–11 discussed earlier (and a rotation of the latter). The 3–5 trichords are also connected to the terminal pitches of the large-scale 3–5 trichords, e♮^{3} and d♮, in a larger projection of a 4–5:[0,1,2,6] tetrachord. Set class 4–5 does not play a prominent role in this movement, but it is noteworthy for being one of only two set classes (the other being the ubiquitous 3–5) featured in this analysis that is also found as a row segment in the *Piano Variations*. The sole appearances of 4–5 in mm. 16–17 result, however, not from a single row segment, but from the overlapping of two row forms.

The final five measures of the movement, mm. 18–22, reassert at the middleground the same pitches, and in the same order of entry, as those of the large-scale projected 3–5 trichords from mm. 1–6—b♭^{2}–f♮^{2}–e♮^{3} and g♯–c♯^{1}–d♮. The initiating pitches b♭^{2} and g♯ are now set



Example 12: Op. 27/II: appearances of *gamma* motive

uniquely as grace notes, but their function as initiators of larger-scale projections of significant pitch-class sets has been well established throughout mm. 1–6, and again from mm. 11–17, and now overrides the general tendency of grace notes to serve an accessory, rather than structural role. That is to say, pitch associations outweigh rhythmic associations when there is a conflict between the two, as is the case here. The immediately preceding completion of the 3–5 projections from mm. 11–17 also suggests that a new projection will begin at this point. And to offer one final argument in support of this conclusion, at the juncture between the completion of the first 3–5 projection and the initiation of the second at mm. 17–18, the pitches that sound contiguously in each register in the foreground anticipate the large-scale projections that are about to begin. (See example 5b.) These are only of local significance, and are mentioned here to illustrate that set classes projected over relatively long temporal spans can also connect the termination of one projection and the initiation of the next; a similar example can be found at the end of the work, where the termination of the projected 3–5 trichords is linked to the beginning of the repetition (and to the conclusion of the piece) by a pair of locally contiguous, but not segmental, 3–5 trichords. Also shown is the 4–16 tetrachord formed by the inclusion of the second pitch in the grace-note figures; 4–16, it will be recalled, was projected at the middleground in mm. 7–11, and appears again mm. 19–20. The reversal in structural weight in the two components of each grace-note figure, therefore, is further warranted by its integration of significant set classes at different structural levels.

The analytic graph shows the termination of the large-scale 3–5 projections (mm. 18–21) with e♮^{3} and d♮, which have assumed the function of termination throughout the movement. As shown in example 5b, the terminating dyad plus the grace-note embellishments and the preceding dyad (g♮[1] and b♮[1]) together comprise a 5-Z37 pentachord; this pentachord replicates the pitch classes of the 5-Z37 pentachord shown in mm. 5–6, which likewise marked the concluding five pitches to sound at the foreground upon the completion of a middleground construct holding formal signigicance.[18] The temporally isolated b♭[2] and g♯ dyad in m. 22, in its first rendition, initiates the restatement of the movement's second half, consistent with the established function of initiation associated with these pitch classes. At the end of the second rendition, the isolation of the dyad and the absence of continuation precipitates the ironic ending that contributes so markedly to the movement's charm. While temporally isolated after the long silence preceding it, the final b♭[2] and g♯ dyad is integrated into the foreground harmonic fabric by forming with the immediately preceding pitches important set-class relationships that have been established earlier: these include the final seven, five and four sounding pitches, forming members of set classes 7–22, 5–15 and 4–16.

The final three pitches in each registral strand present a final affirmation of the significance of set class 3–5 to the work by a final presentation of two 3–5 trichords which replicate the pitch classes of the simultaneities at the climax in m. 15. These 3–5 trichords, uniting the last grace-note figures from one row form with the member of the final dyad from the opposite row form, leave a final reminder of the difficulty in setting absolute boundaries on the jurisdiction of the twelve-tone system or method.

The examination of foreground and middleground projections in Op. 27/II reveals that each half of the movement includes two internal divisions that are articulated by large-scale projections and structural levels: mm. 1–6, mm. 7–11, mm. 12–17 and mm. 18–22. The pitch-class set projections of largest scale demarcate these internal divisions. Each of these four passages includes one of the four pairs of 3–5 simultaneities that are formed by row segments at the immediate foreground, and the registral extrema of each of these 3–5 trichords intersect with the deepest middleground projections of 3–5 trichords or 4–16 tetrachords. The large-scale projections of a small number of related pitch-class sets and their integration with set classes formed on the musical surface strongly suggest the influence of structural levels which organize the work independently of the serial organization.

Some Theoretical Considerations

Although the central focus of this article is analytical, it is important, in conclusion, to say a few words about some of the underlying theoretical issues. Approaching a nontonal work such as Webern's

Piano Variations from the perspective of structural levels raises the issue of the concept of prolongation. Some recent writers on posttonal prolongation view "composed-out" pitch-class sets as a supplement to an underlying tonal design (Baker 1986; Baker 1990; Forte 1988a; Pearsall 1991). Joseph Straus argues that, due to the absence of (among other things) a qualitative distinction between consonance and dissonance and a set of defining conditions for harmony and voice leading, prolongation in its Schenkerian sense is not viable in post-tonal music (Straus 1987). Fred Lerdahl points out, however, that although Straus's requisite conditions for prolongation are alluring, they are also circular, in that by defining these conditions strictly in tonal terms, it is inevitable that they will fail when applied in a posttonal context (Lerdahl 1989, 67–8).

In this revisionist analysis, neither single pitches nor unique consonant (or dissonant) sonorities constitute objects of prolongation. The objects of projections shown at the deeper structural levels are more abstract than specific pitches or sonorities; they are set classes represented by collected pitches or pitch classes whose significance is defined contextually.[19] What I hope I have demonstrated is that the twelve-tone music of Webern, and not just the non-serial repertoire, can be profitably addressed through a hierarchic approach. The connections between significant surface events and projections at deeper structural levels illuminate the music from a standpoint that does not depend upon row structure and transformations. This is certainly not to say that the serial structure is unimportant—it cannot be divorced from the successions of pitch classes and rows that informs the work—but to restrict attention to it, in my view, too narrowly circumscribes the analytical process.

As I mentioned in the introduction to this article, the early history of Webern analysis in the 1950s conjoined analytical and compositional theory both in Europe and in North America. It seems appropriate to examine assumptions about the authority of an analytical approach that has its basis in a compositional method, even when a theoretical system exists that controls the abstract relations behind the method.

The commanding status of the twelve-tone method as a living and vital compositional method for a substantial portion of the twentieth century has instilled a bias into the analysis of twelve-tone music. Analysts often discount the composer's intentions when formulating analyses of tonal or pre-serial atonal works—analytical relationships emerge contextually and in alliance with theoretical models. Yet when confronting twelve-tone works, analysts are sometimes content to focus on relationships determined by the twelve-tone system and the row, aspects that result, in large, from compositional intent. By removing this artificially imposed limitation on analysis of twelve-tone music as I have sought to do in my analysis, the analyst is free to explore structural relationships in an less inhibited manner, leading to new insights about the inner workings of a captivating repertoire.

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NOTES

1. This article is an expanded version of a paper read in March, 1993 at the Fifth British Music Analysis Conference in Southampton, England.
2. *Die Reihe* 2 (1955) is a commemorative issue devoted to Webern that includes several philosophical essays eulogizing Webern as the herald of total serialism. See especially Herbert Eimert, "Die notwendige Korrektur," 35–41, and Pierre Boulez, "Für Anton Webern," 45–46. Some of the more technical essays in this volume emulate the ideal of objectivity that was the paragon of total serialism itself. (See Leopold Spinner, "Analyse einer Periode: Konzert für 9 Instrumente, op. 24, 2. Satz," and Herbert Eimert, "Intervallproportionen: Streichquartett, 1. Satz.") See also Stockhausen (1953).
3. Most analytic writings on Webern's twelve-tone music from the 1960s and 1970s limit their discussion of pitch to the structural properties and treatment of the rows. See, for example, Ogdon (1962), which includes a discussion of the second movement of the *Piano Variations* Op. 27, Hitchcock (1970) and Cholopov (1973). Heinrich Deppert's monograph (1972) likewise concentrates on the serial treatment of pitch, but, as the first book-length analytic study of Webern's

late instrumental works, offers a constructive and comprehensive picture of Webern's twelve-tone techniques. Bailey (1991) also preserves the definitive and hegemonic role of the row in her descriptions of pitch relationships, while demonstrating Webern's attraction to Classical period instrumental forms.

Christopher Hasty's writings are noteworthy exceptions; they investigate the structural role of features outside of the row. See Hasty (1981 and 1988). Wintle (1982) offers an analytic view of the second movement of the *Concerto for Nine Instruments* Op. 24, showing that characteristic intervallic features of the row operate at levels beneath the surface.

4. See Cox (1992) for a study of Webern's pre-opus works and fragments for piano.
5. Bailey (1991: 61, 111–12, and 262–63) provides a general description of the canonic design of Op. 27/II.
6. I employ the following convention for registral designations: C two octaves below middle c to B above that—C, D, E, etc.; c one octave below middle c to b above that—c, d, e, etc.; middle c to b above that—c^1, d^1, e^1 etc.; c above middle c to b above that—c^2, d^2, e^2, etc.
7. Various conventions for the labelling of row forms are employed by different authors. I have adopted the following conventions here: 1) P0 is the transposition of the row beginning on C, I2 is the inversion of the row beginning on D, etc. I use this convention to emphasize specific pitch classes regardless of the order position they occupy in different row transformations; 2) The row matrix for the first movement applies to subsequent movements for ease of reference. This procedure reverses the P (prime) and I (inversion) designations for the second movement of Op. 27 in comparison to some other published analyses, since it begins with an inverted form of the first movement's opening row.
8. The remaining eight pairs of inversionally related row forms that share index 6 are P0/I6, I0/P6, P2/I4, I2/P4, P5/I1, P7/I11, I7/P11, and P9/I9.
9. Mead (1993) addresses the interaction of serial organization and primitives of the twelve-tone system in Webern's twelve-tone music, and demonstrates how Webern consolidates twelve-tone technique with traditional formal designs. Mead's article sensitively points out the need for a more critical separation of three conceptual tiers: the primitives of the twelve-tone system; the properties associated with the entire set of transformations of the row for a given composition; and the deployment of row forms on the musical surface (173–74). My formula that generates row schemes isomorphic to that in Op. 27/II results from primitives of the system. A substantial portion of Mead's article (179–87) is devoted to an analysis of Op. 27/II, and may be compared with my analysis. Though he seemingly takes the opposite approach—he focuses on the twelve-tone system and segmental relationships—we arrive at a number of similar conclusions.
10. The rows for Opp. 21, 28, 29 and 30, are symmetrical, that is, the primary hexachords are inverse and/or retrograde related. The hexachords for the row in each work are related by the following operations: Op. 21—RT_6; Op. 28—$RT_{11}I$; Op. 29—RT_9I; Op. 30—RT_5I. My nomenclature for operations is after Morris (1987).

11. I have renotated Travis's graph to make it more legible than the handwritten original. All of Travis's analytic symbols are preserved; the only additions I have made are measure numbers.
12. I discuss double interval cycles, in particular that of intervals 5 and 6, in my dissertation (Nolan 1989). See also Lewin 1993 for an application of cycles of 5 and 6 units in the realm of duration and meter in Op. 27/II.
13. Mead's examples 3d and 3e illustrate dyadic associations and invariances that inform the foreground of the work, as well as some longer-range connections that tie in nicely with my differently conceived analytical approach here (Mead 1993, 182–83).
14. Bailey considers ways in which Webern's use of grace notes in his twelve-tone works affects the preservation of the order positions in the row (Bailey 1991, 410–15).
15. The pitch classes of these registral extrema return as g♮^{1} and b♮^{1} in mm.19–20, in the inner voices of the 3–5 simultaneities, and immediately after this in m.20 sounding alone in the same register. Pitch classes 7 and 11, then, are set contextually at both the nearest and farthest registral distances from the axial pitch a♮^{1}.
16. The appearance of pitch class 3 in two registers in m.3 (e♭^{1} and d♯^{2}) also undermines its potential for indicating closure, despite its position in the row forms at this point.
17. Set class 5–Z37 is significant in a more abstract way as well, in partitioning the twelve pitch classes into those that appear uniquely in a single register throughout Op. 27/II and those that appear in more than one register. Five pitch classes appear in more than one register, and form a 5–Z37 pentachord, {11,2,3,4,7}. Mead refers to these as the five "roving" pitch classes, and explores the motivic implications of the G♮–E♮ and B♮–D♮ dyads, my *gamma* motive (Mead 1993, 185–86).
18. Mead points out the equivalence relation between the first five pitches to sound in the movement, 5-Z37: {5,8,9,10,1}, and this pentachord, 5-Z37: {11,2,3,4,7}.
19. This distinction underlies the postscript on notation in Forte 1992. Forte emphasizes that structural levels in the atonal repertoire with which he is concerned are based on hierarchies that emerge from set-class and pitch-class-set relations, not from voice-leading paradigms (Forte 1992, 378). Forte (1988a) also discusses the lack of uniformity in intentions and assumptions in the growing literature dealing with linear conceptions of posttonal music.