The Problem of Prolongation in Post-Tonal Music

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THE PROBLEM OF PROLONGATION IN POST-TONAL MUSIC

Joseph N. Straus

Prolongation is an idea of extraordinary power.[1] It has afforded remarkable insights into common-practice tonal music, enabling us to hear through the musical surface to the remoter structural levels and ultimately to the tonic triad itself. When the concept of prolongation was relatively new, many theorists tried to apply it to the characteristic post-tonal music of this century.[2] In general, however, it led them not to the post-tonal middleground, but to a dead end. With a few exceptions, theorists have virtually ceased to produce prolongational analyses of post-tonal music. They have thus tacitly acknowledged that prolongation has revealed and can reveal little of solid worth about the deeper structural levels of the post-tonal music we care most about, music by Stravinsky, Schoenberg, Webern, Bartok, and others. In what follows, I want to suggest reasons for the unexpected failure of this potent analytical tool, then propose a less ambitious, but theoretically more defensible approach to the middleground organization of post-tonal music.

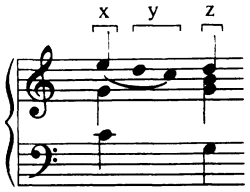
First, let us abstract from a tonal context the essential features of prolongation. In Example 1, the stemmed upper-voice E is prolonged by a passing-note D within the interval between E and C. While the unstemmed D and C are sounding, the E is not literally present but, even so, it is still in force structurally. The E is not displaced until the appearance of the

stemmed D, which has a comparable degree of harmonic support. More generally, we might say that within a prolongation, some musical entity stays in control even when it is not explicitly present.

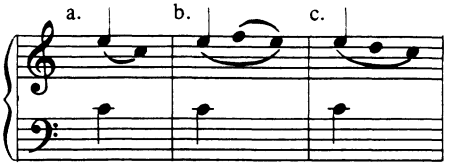
It is important not to confuse prolongation with mere contextual reinforcement or repetition. Prolongation exists precisely when the prolonged object is *not* literally present. Given three musical events X, Y, and Z, like those in Example 1, the prolongational model claims: "Y is structurally inferior to X and extends X; X is not displaced until Z arrives." Such a claim has great analytical power. It permits the stratification of a musical work into structural levels in which the events at the levels closer to the musical surface prolong events at the more remote levels. Prolongation and the related concept of structural levels are, of course, the essential Schenkerian insights. They constitute a powerful model of musical coherence, but one which can be meaningfully applied only under certain musical conditions. It is possible to identify four conditions necessary for prolongation. These four conditions, set forth below, distill certain familiar phenomena that underlie the concept of prolongation as that concept is generally understood. Except for isolated moments, post-tonal music does not meet these conditions and therefore is incapable of sustaining a prolongational middleground or of being meaningfully described in terms of prolongation.

Condition #1. The consonance-dissonance condition: A consistent, pitch-defined basis for determining relative structural weight. Tonal music presents a clear distinction between consonance and dissonance, a distinction grounded in the ultimate consonance of the triad and its intervals (thirds, fifths, sixths, and, in certain circumstances, fourths). All other sonorities and all other intervals are relatively dissonant. This fundamental distinction permits consistent determination of relative structural weight. In general, consonant harmonies or pitches with consonant support have greater structural weight than dissonant harmonies or pitches with dissonant support. A prolongational analysis proceeds from the surface to the deeper levels by paring away the relatively dissonant tones at each successive level of structure.

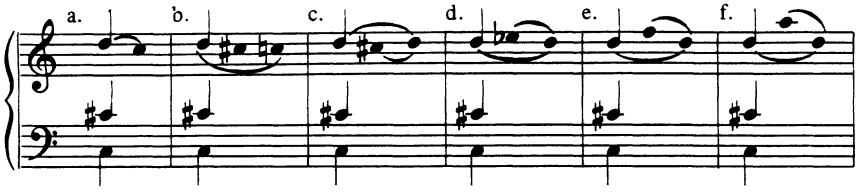
Consonance and dissonance, of course, are defined by pitch. Other criteria like register and duration are usually coordinated with structural weight but are necessarily secondary. An appoggiatura, for example, is generally higher, louder, and more accented than the note to which it resolves, yet the tone of resolution has the greater structural significance. An analysis in which, for example, the louder pitches were assumed to have greater structural weight than the softer ones, and in which this criterion was applied at each thus-established structural level, would produce absurd results. This would also be true of assigning greater structural weight to the longer pitches, or the higher pitches, or the more accented pitches. This is not to say that one cannot hear associations among pitches which share the



Example 1. Prolongation in a tonal context



Example 2. The three tonal prolongation types



Example 3. Prolonging set-class 3-1 (012)

same dynamic level, duration, register, or metrical placement. Clearly one can make associations like this and, as we shall see, such associations are the essential feature of post-tonal middlegrounds. However, only relatively pitch-dependent criteria, like consonance and dissonance, can be reliably used to reveal prolongation.

Unfortunately, it is extremely difficult to establish such criteria for much post-tonal music. There is no reason to assume that triadic music is uniquely capable of distinguishing consonance from dissonance—one can imagine such a distinction established contextually—but the most significant post-tonal music does not seem to do so. Not only does post-tonal music abandon the triad as the ultimate source of consonance, but it usually abandons any consistent distinction between consonance and dissonance. In the absence of such a distinction, determinations of relative structural weight must depend on non-pitch criteria and will have poor results. Without a pitch-based way of distinguishing structural from non-structural tones, it will be impossible to reveal a prolongational middleground.

Condition #2. The scale-degree condition: A consistent hierarchy of consonant harmonies. The scale-degree condition is really an extension of the consonance-dissonance condition. In order to establish the kind of structural hierarchy necessary for prolongation, we must first distinguish between consonance and dissonance. If we want to pursue prolongation to more remote levels of structure, we must make a further distinction—we must assess the relative structural weight of the consonant harmonies themselves. In tonal music, the tonic triad and the dominant triad are both triads and yet, when they occur at the same structural level, we consistently assign greater structural weight to the tonic. In tonal music, each of the scale-degrees has a place within a hierarchy. In post-tonal music, some sonority might be defined contextually as a consonance. This would permit small-scale prolongations. But prolongation across wider musical spans requires a hierarchy of consonances.

Condition #3. The embellishment condition: A consistent set of relationships between tones of lesser and greater structural weight. One musical event can be said to prolong another only if the relationship between the two can be described with consistency and precision. In tonal music, there are only a small number of prolongation types. For one tone to prolong another it must be a passing note, a neighboring note, or an arpeggiation through some triadic interval.

These embellishment types are illustrated in Example 2. In Example 2b, the E is prolonged by an arpeggiation within the C-major harmony. In Example 2b, the E is prolonged by a neighboring note F. In Example 2c, the E is prolonged by the passing note D which moves within a triadic interval of the C-major harmony. With just these three prolongation

types—arpeggiation, neighboring tone, and passing tone—the relationship between any tone and the nearest structural tone can be consistently and precisely described at any structural level.

The prolongation types shown in Example 2 are succinctly expressed in species counterpoint. Designed as a way of teaching composition, species counterpoint serves also as a model of tonal prolongation. If a similar simplicity of prolongation types can be shown to exist in some post-tonal music, presumably a corresponding species counterpoint or other prolongational model could also be evolved. Moreover, a convincing demonstration of prolongation requires the secure foundation of such a consistent model of voice leading.

Condition #4. The harmony/voice leading condition: A clear distinction between the vertical and horizontal dimensions. In tonal music, prolongation involves the horizontalization of an interval within some harmony. Prolongation takes place within an intervallic or harmonic space. In Example 2, the interval C-E and the C-major harmony are prolonged by the embellishments applied to the E. Even in Example 2b where it appears that a single tone is being prolonged, the neighboring function of the F is defined not with respect to the E alone, but with respect to the interval C-E.

The concept of horizontalization is made possible by the clear distinction in tonal music between harmony and voice leading. Harmonies are constructed with triadic intervals (3rds, 4ths, 5ths, and 6ths), but individual voices move by step. Melodic motion by step takes place within a single voice; motion by an interval larger than a step goes from voice to voice and arpeggiates some harmony. The step (major or minor second) is the unique voice leading interval in tonal music.

One can think of this distinction between the vertical and the horizontal in terms of the structure of the diatonic collection: voice leading in tonal music proceeds from one pitch-class to another pitch-class adjacent within the diatonic collection (that is, one step away). Harmonic intervals are formed by non-adjacent elements within the collection.[3] From this point of view, the special place of the triad can be clearly understood—it is the maximal subset of the diatonic collection consisting entirely of non-adjacent elements.

Such a clear distinction between the vertical and horizontal dimensions is strongly conducive to prolongation. Consider, in contrast, the problems associated with prolonging a sonority like set-class 3-1 (012) within a collection consisting of all twelve pitch-classes.[4] It is virtually impossible to determine the voice-leading function of the melodic motions.

Each part of Example 3 shows the sonority C-C♯-D extended by some upper-voice motion. In each case, it is difficult to determine the relations among the upper voice pitches and to ascertain whether the motions truly prolong the initial tone. In Example 3a, the initial D is followed by a C. Is

the C an arpeggiation within the prevailing harmony or is it a neighbor note? The structure of set-class 3-1 (012) prevents a clear answer. Example 3b presents the same dilemma with respect to the passing note. Is the C♯ a passing note between two supported tones or is it part of an arpeggiation among the members of the harmony? There is no way of knowing or of making clear, consistent distinctions among the prolongation types. A dependable theory of voice leading cannot survive in such a context.

A comparison of Examples 3C and 3D suggests further difficulties. Here, the upper voice moves by semitone but involves in the first case motion within the harmony and in the second case motion outside the harmony. Because of the special place of the triad in the diatonic collection, stepwise motion in tonal music always involves motion away from the original harmony. With set-class 3-1 (012), however, a single interval can define motion either within or away from a prevailing harmony. In this way, the crucial distinction between harmony (motion between voices) and voice leading (motion within a voice) is lost.

Examples 3E and 3F suggest similar problems. Each involves motion outside of the collection, but the nature of these motions is hard to specify. They cannot be arpeggiations since they go to pitches outside the original harmony and since they move by a nonharmonic interval (only intervals 1 and 2 are harmonic intervals as defined by set-class 3-1 (012)). They might be considered neighboring motions since each involves motion away from and back to a supported tone, but this would involve too radical a revision of the traditional concept of neighboring note. The F in Example 3E and the A in Example 3F are not adjacent to the original D within the overall collection and therefore cannot be neighbors in any usual sense. Within the context of some piece, it might be possible to construct a voice leading model which would explain the contents of Example 3 in a clear consistent way. Such an explanation, however difficult to achieve, is a prerequisite for a demonstration of musically meaningful prolongation.

It is crucial to distinguish between centricity and prolongation. Pitches can be emphasized in many ways. In any music, pitches that are higher, longer, louder, or more accented tend to have greater structural weight. The sonority C-C♯-D in Example 3 might even be contextually established as a quasi-consonance, capable of supporting the upper-voice D, thus meeting the consonance-dissonance condition. If Example 3 represented a piece of music, the D's could have earned their stems in a variety of ways. The problem in Example 3 is not the stems on the D's, but the slurs that follow. The D's may be strong in this musical context, but they are not prolonged.

Examples 3C through 3F involve motion away from and back to a contextually reinforced sonority. But mere departure and return do not constitute prolongation. This is not a semantic dispute or evidence of an excessively zealous desire for theoretical purity; it is a central, qualitative distinction. With the departure-and-return model, we preserve only the most superficial

feature of prolongation while losing its most essential analytical benefit: the stratification of a work into structural levels integral to one another. We lose the crucial sense of prolongation as embellishment or diminution. If the "away" material and the type of motion toward it are virtually unrelated to the material departed from and returned to, then they can hardly be considered prolongational. To take an extreme example, if I play a C-major triad, then play seventeen randomly chosen notes, then restate the C-major triad, it would not be informative to claim that the random notes prolonged the triads. Of course, one can hear a clear association between the triads and a distinction between them and the intervening material, but that is another story. Just because event Y falls between two occurrences of event X does not mean that Y prolongs X. In Example 3, the departures and returns have no integral or even specifiable relationship to the sonority they appear to embellish. Identification of such departures and returns may help in clarifying the principal goals in some musical foreground, but they will not provide a reliable guide to the deeper structural levels.[5]

A confluence of deep structural properties of the tonal system makes possible prolongational voice leading and prolongational middleground structure. In principle, it should be possible for other compositional systems using other collections also to produce prolongation. The octatonic collection is an obvious candidate. Because of the symmetrical nature of the collection, octatonic music might not meet the scale-degree condition, but it could meet the others. In principle, it would not be difficult to construct an octatonic-prolongational model, complete with a species counterpoint. In general, however, Stravinsky and other composers associated with this collection have not used it to create prolongations. The octatonic collection, like the diatonic collection, might be capable of sustaining prolongation, but twentieth-century composers have generally not exploited that capability.

Here, in summary, are four necessary conditions of prolongation: First, there is the consonance-dissonance condition; we need a way based on pitch of distinguishing between structural and nonstructural tones. Second, there is the scale-degree condition; we need some kind of hierarchy among the consonant harmonies. Third, the embellishment condition; we need a consistent model of voice leading that will enable us, for example, to tell an arpeggiation from a passing note. Fourth, there is the harmony/voice leading condition; we need to be able to distinguish motions within a voice from motions between voices. Tonal music clearly meets all of these conditions; post-tonal music, in general, does not. As a result, post-tonal music is not prolongational or, to put it another way, prolongation as an analytical tool will not produce significant results.

This does not mean, however, that we should throw out the cherished baby of large-scale organization along with the prolongational bath water. It simply means we must be cautious in making assertions about the post-tonal middleground. Analytical observations based on incorrect assumptions

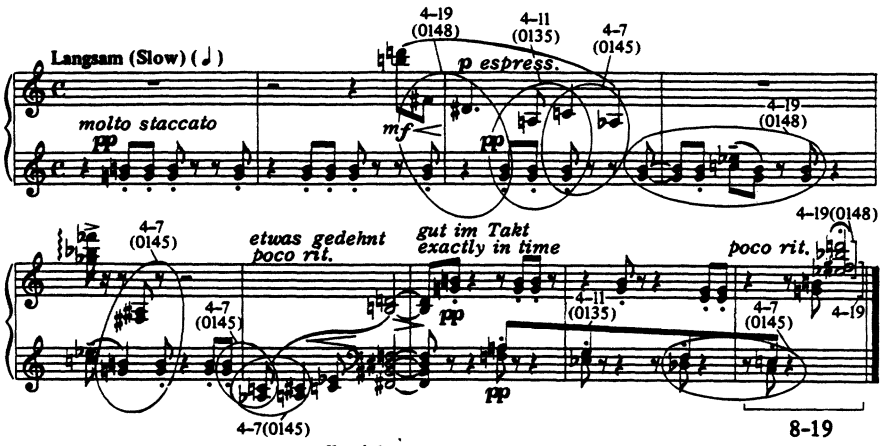
about prolongation can lead to distorted and—in a strict sense—meaningless assertions about music.[6] We can, however, make meaningful assertions about the post-tonal middleground if we are willing to view it as associative rather than prolongational. Post-tonal middlegrounds are often constructed to replicate the contextual structures of the surface, without reference to any common practice of harmony or voice leading. Before presenting what I call the "associational model," however, it will be instructive to examine attempts by Roy Travis and Felix Salzer to uncover prolongational middleground structures in post-tonal music.

Consider first Roy Travis's analysis of Schoenberg's *Kleine Klavierstücke,* op. 19 no. 2.[7] The score of the piece is shown in Example 4A and Travis's analytical graph is reprinted in Example 4B. Many obvious features of this piece encourage a tonal-style approach. The recurring G-B third and the concluding bass descent to C are certainly suggestive of tonal practice. But it turns out that a tonal approach, even a modified one, runs into severe problems at every turn.

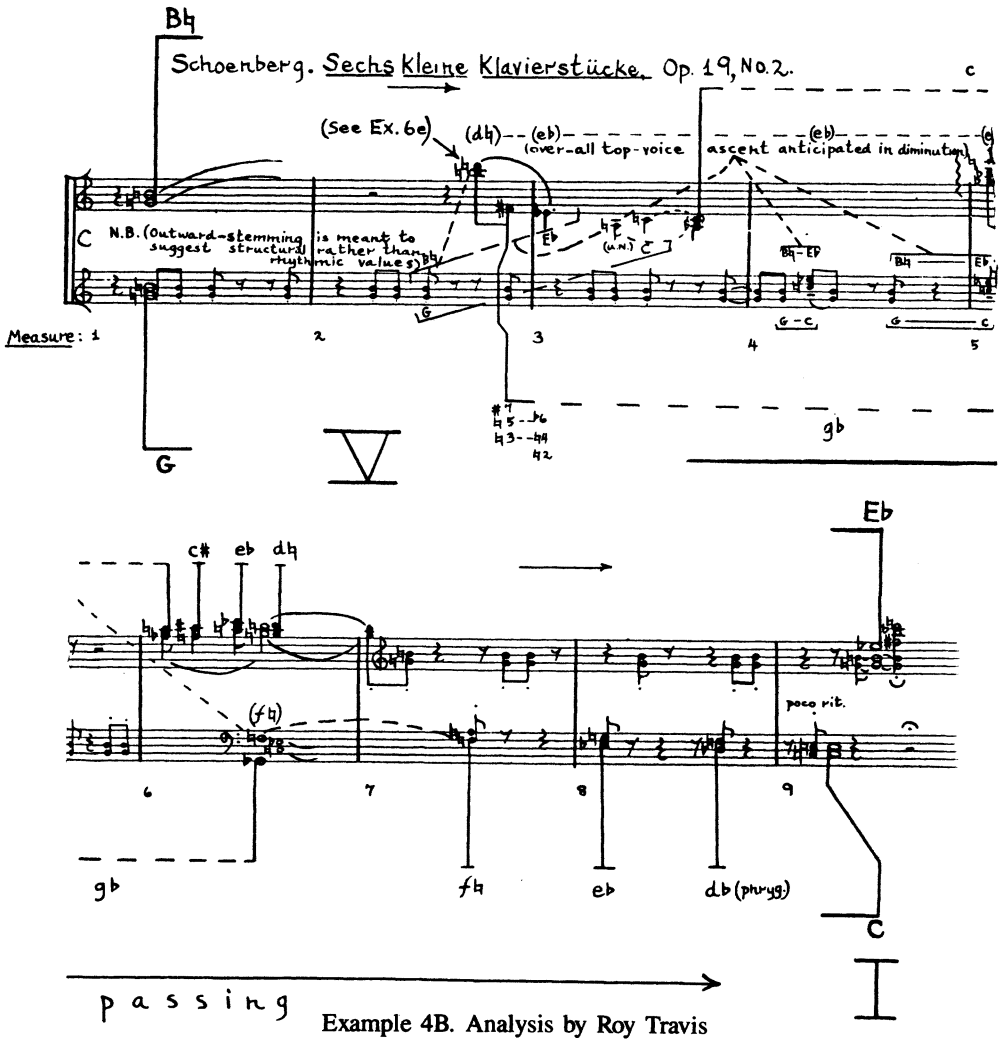
Consider the descending fifth in the bass from G to C which Travis shows as spanning the entire piece, concentrating particularly on the intermediate G♭ which Travis shows in mm. 2–6 as a chromatic passing note within this larger descent. How well do this passage and this analysis meet my four conditions? First, the consonance-dissonance condition: Can the G♭s justifiably receive the stems Travis gives them? Are they structurally superior to the notes around them? I think the answer must be no. The harmonies in which the G♭ (or F♯) occurs (in mm. 2, 5, and 6) are entirely different from one another and none of them could be considered relatively consonant in this context. Perhaps a case could be made for the F♯ in m. 2 as part of a local occurrence of set-class 4-19 (0148), a principal harmony of the piece.[8] As for the other F♯s, there is no apparent justification for granting them any kind of structural priority. The harmonies in which they occur are not referential in this piece and the chord in m. 6 is not even a subset of what Travis considers the "tonic sonority," namely the notes in the last measure of the piece. Since the consonance-dissonance condition is not met, the more restrictive scale-degree condition would not be either.

What about the embellishment condition? Can we describe the notes between the F♯s as embellishments of F♯? Again, I think the answer is no. It is possible to associate the F♯ in m. 2 with the G♭ in m. 5, to recognize their membership in the same pitch-class. It is not possible to describe the notes which lie between them as passing, neighboring, arpeggiating, or any other embellishment type I can imagine.

In part, this is because Travis cannot show that the music fulfills my fourth condition—the distinction between harmony and voice leading. Travis's sonic sonority, set-class 8-19 (01245689), contains every interval class at least twice. As a result, it is impossible to interpret the voice leading motions. At times, Travis asserts motion by half-step as neighboring



Example 4A. Schoenberg, *Kleine Klavierstücke*, op. 19/#2



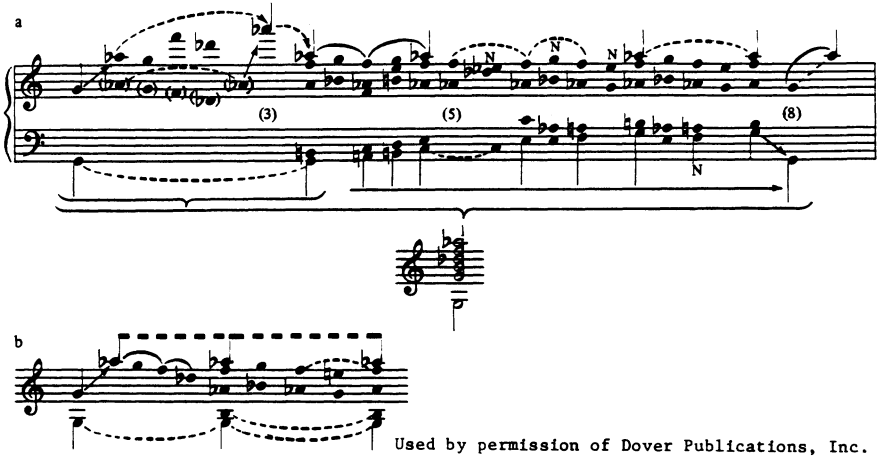
Example 4B. Analysis by Roy Travis

motion – in m. 3, for example, A is shown as an upper neighbor to A♭. But this is not, nor could it be, consistently carried through. For example, the allegedly structural F♯ in m. 2 is supported by a harmony that contains a G. Does this then make the interval F♯-G a harmonic interval? If it does, then how can it also be a voice leading interval? Surely, it cannot.

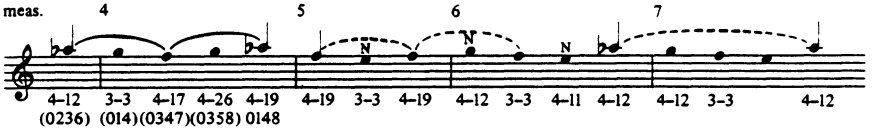
If we define prolongation with reasonable strictness and consistency, we must conclude that the F♯ is not prolonged in mm. 2–6 and, more generally, that this music cannot be meaningfully discussed in terms of prolongation. For this piece, at least, prolongation is an anachronism. The basic categories of tonal pitch structure cannot be simply or directly transferred to a post-tonal context. There are, of course, explicit tonal references in this piece, particularly in the bass descent to C in the final measures. A full analysis of this piece requires an explanation of that descent, one that does not deny its obvious tonal reference. A meaningful explanation, however, cannot rely on prolongation. It will have to be constructed upon different theoretical premises. Later in this paper, I shall outline such an explanation.

Felix Salzer, the best known exponent of prolongational analyses of post-tonal music, encounters similar problems in attempting to explain the opening of Stravinsky's *Symphony in Three Movements* in terms of "the prolongation of the polychord on G with the D♭ chord as a secondary chord of fusion."[9] Salzer's analytical graph is shown in Example 5A. Example 5B shows the melody as Salzer analyzes it, together with the harmonies supporting each tone.

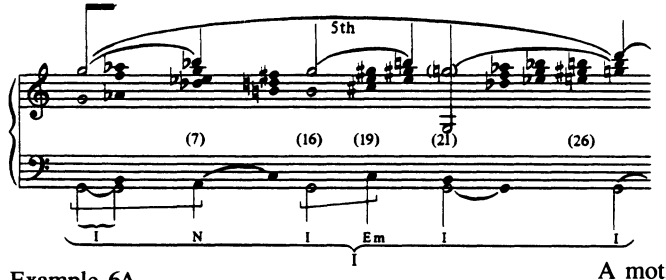
How well do this passage and this analysis conform to the four conditions? Let us consider first the question of consonance and dissonance. Does Salzer distinguish consistently between sonorities that are capable of supporting a structural tone and those that are not? The principal upper-voice tone, A♭, is initially supported by set-class 4-12 (0236) and is supported by the same sonority on the last beat of m. 6 and the last beat of m. 7. This sonority is a subset of Salzer's polychord and, in these three instances, seems to function as a quasi-consonance capable of providing harmonic support for a structural upper–voice tone. Let us see how consistently this notion of harmonic support is worked out in the rest of the analysis. Problems crop up first at the end of m. 4, where the upper voice A♭ is supported by set-class 4-19 (0148), a quite different sonority. If set-class 4-12 (0236), with its tritone and scarcity of major thirds is considered a consonance, it is hard to see how 4-19 could be also. On the other hand, 4-19 is also a subset of the polychord and, in m. 5, it does support the structural Fs in the upper voice. Yet even the relatively generous assumption that *both* set-class 4-12 and 4-19 are contextual consonances is contradicted in mm. 6 and 7. In these measures, set-class 4-12 supports neighboring and passing notes while set-class 3-3 (014), used elsewhere as a secondary harmony, supports a structural tone. Salzer's determination of structural pitches, then, seems not to depend upon a consistent distinction of consonance and



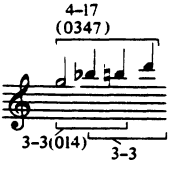
Example 5A. Analysis by Felix Salzer



Example 5B. Harmonic support for Stravinsky's melody



Example 6A.
An apparent large-scale prolonging motion



Example 6B.
A motivic reinterpretation

dissonance or a clearly articulated notion of harmonic support. In fact, a consistent notion of harmonic support would be virtually impossible to develop for this music.

The embellishment and harmony/voice leading conditions are also insufficiently met. The music does not make a distinction between the horizontal and vertical dimensions since every interval is, by the nature of the generating polychord, a harmonic interval. As a result, the upper voice motions are uninterpretable in terms of voice leading. Because of the absence of a functional distinction between the horizontal and the vertical and the impossibility of distinguishing clearly between supported and unsupported tones, an upper voice motion such as A♭-G-F cannot be given a meaningful interpretation. The A♭ is unquestionably the most important melodic tone, reinforced in a variety of contextual ways, but it is not prolonged by the G and F.

This may seem strange. When one sees a high A♭, followed by a G and then an F there is a strong temptation, based on years of familiarity with tonal music, to slur them together and think of them as a third-span prolonging a structural A♭. But such a simple slur is really a complex analytical act, one which depends on certain theoretical assumptions. If the musical context makes the assumptions untenable, the analysis will be, strictly speaking, meaningless. Clearly Stravinsky is making some kind of tonal allusion with these motions between A♭ and F, but a convincing explanation of them can be constructed only on a non-prolongational foundation.

These observations apply with even greater force to Salzer's analysis of longer spans in the music. His analysis of the music up to Rehearsal 26, in Example 6A, shows the upper voice G prolonged by three distinct motions, first up to B♭ by way of the A♭ emphasized in Example 5, then up to B♮, and finally up to D.[10] There can be little quarrel with Salzer's selection of upper voice notes. The B♭, B♮, and D are strongly emphasized in the music. Those notes, however, cannot be reasonably described as "prolonging." The chord supporting the B♮ is quite unlike the original polychord, raising again the question of consistent consonant support. The B♭ and the D are not part of the original polychord and thus cannot be arpeggiations. According to my four conditions, these motions are not prolongational at all.

The stemmed B♭, B♮, and D can be more satisfactorily explained from a different point of view. Example 6B shows Salzer's middleground upper voice as a large scale statement of set-class 4-17 (0347), consisting of two overlapping statements of set-class 3-3 (014). Set-class 3-3 occurs many times in the opening measures and is a subset of virtually every vertical. It is emphasized locally in the opening measures, and then composed-out in the melody over the first 107 measures. The large-scale upper voice in Example 6B looks like Salzer's in Example 6A, but it is based on different theoretical premises. The B♭, B♮, and D do not prolong the initial upper-voice G. The B♭, B, and D are not arpeggiations or neighbor notes,

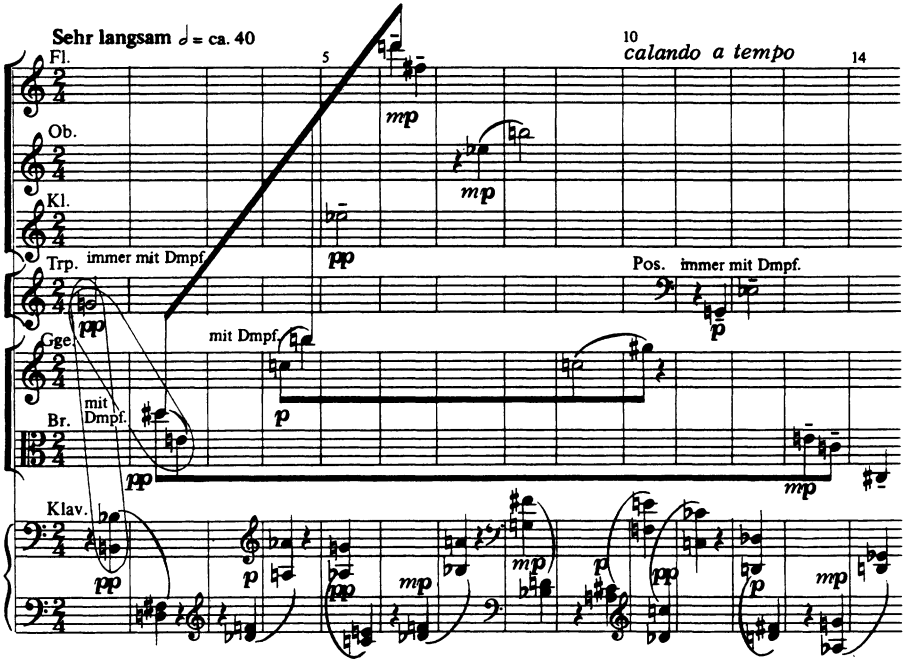
or any kind of prolongation. The G does not remain in force when those other notes are sounding. Rather, those other notes are simply associated with the G as part of a large-scale motivic statement. The associations are established contextually (and conditioned by what Pieter van den Toorn calls octatonic "routines").[11] They are not part of a tonal-style prolongation as Salzer claims.

Salzer's analysis is interesting in itself, showing how one particularly fine musician tried to hear this passage, but its lessons cannot be generalized or applied to other pieces. Salzer's approach is essentially ad hoc, unsupported by a secure theoretical foundation. There are isolated passages of post-tonal music that might be considered prolongational, but these occur mainly where some tonal vestige is present. The more overtly tonal the context, the more amenable it is likely to be to prolongational explanations. For the larger musical spans, however, and for music that is most characteristic of the twentieth century, prolongation has proven an attractive but ultimately useless tool.[12]

If we wish to discuss middleground structure in post-tonal music, we will have to retreat to a less comprehensive but more defensible model of voice leading, one based on association rather than prolongation. Associational claims differ significantly from prolongational claims. Given three musical events, X, Y, and Z, an associational model is content merely to assert some kind of connection between X and Z without commenting one way or another about Y. Assertions of this type are relatively easy to justify and provide the only reliable basis for describing post-tonal middlegrounds. Musical tones separated in time may be associated by a variety of contextual means, including register, timbre, metrical placement, dynamics, and articulation. Associations of this kind draw together elements separated in time and create coherence at the middleground.

Examples 6A and 6B were intended to dramatize the distinction between prolongation and association. Salzer's prolongations are superficially attractive but theoretically insecure. Reinterpreting his upper voice as a large-scale motivic statement claims less about the music, but provides a more secure basis for discussing the large musical spans.

Webern's *Concerto for Nine Instruments,* op. 24 (second movement) provides a simpler example of middleground structures created by association. Example 7 shows occurrences of set-class 3-3 (014) in which the constituent pitches are associated in a variety of ways. Within m. 1, the pitches G, B♭, and B are associated in the simplest way possible—on the second beat of the measure they occur simultaneously. Between mm. 1 and 2, the G in the trumpet and the D♯-E in the viola are associated by instrumental grouping. The D♯ in the viola in m. 2, the B in the violin in m. 4, and the D in the flute in m. 6 are associated by articulative means—each is the highest pitch in a two-note melodic figure. Pitches are also associated by timbre in the violin part (mm. 4–10) and the viola part (mm. 2–13). The timbrally and



Example 7. Middleground statements of 3-3 (014) in Webern *Concerto for Nine Instruments,* second movement

articulatively defined statements of set-class 3-3 in this passage constitute an associative middleground in which pitches separated in time are linked in some musical domain. Webern thus organizes the larger spans of music in ways directly linked to the motivic surface of the music.

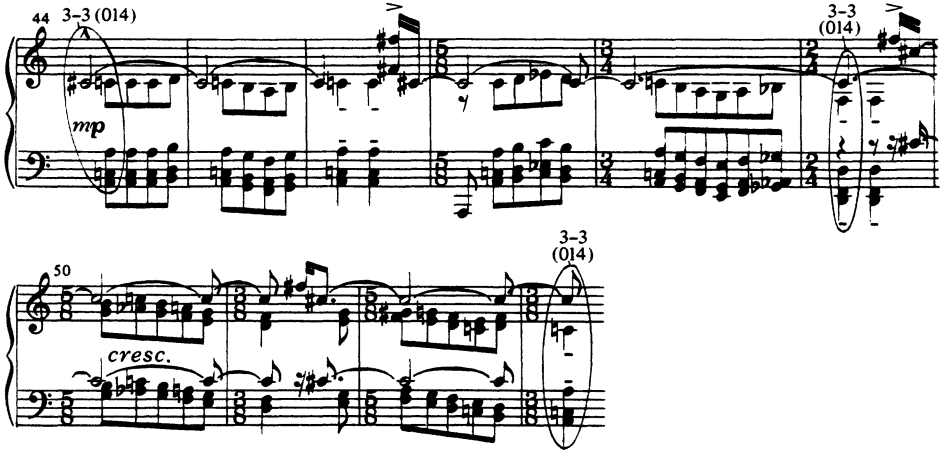
I have made no claim, however, regarding the pitches that intervene between the associated pitches. Between the D♯ in the viola in m. 2 and the articulatively-associated B in the violin in m. 4, for example, many other pitches occur. I have not asserted that these intervening pitches direct the musical motion from the D♯ to the B or that they serve to prolong either the D♯ or the B. Such claims would be extremely difficult to substantiate. Claims of association, on the other hand, are not difficult to substantiate. All that is necessary is continuity in some musical domain.[13] Such associations are frequently used in early twentieth-century music to compose out motivic units over large musical spans. Long range associations of this kind ensure that the music is motivically integrated at all structural levels.

Many post-tonal pieces use their essentially contextual and motivic structure to allude to aspects of tonal practice. When these allusions occur at the deeper structural levels, the result is what might be called a middleground pun. Formations which had one meaning in a traditional setting are given a new meaning within a new musical structure. In particular, post-tonal music may mimic the appearance of prolongational spans without using truly prolongational voice leading. In such situations, it is crucial not to be seduced by the tonal reference into applying anachronistic aspects of tonal theory.

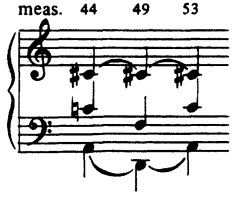
A passage from the first movement of Bartok's Piano Sonata is shown in Example 8A. By register, metrical placement, duration, frequency of reiteration, and position within the passage, three sonorities have the greatest structural weight: the initial A-C-C♯ (set-class 3-3), the medial D-F-C♯ (also set-class 3-3), and the concluding return to A-C-C♯. As Example 8B shows, the upper voice C♯ is sustained and harmonized by different forms of a single set-class.

A large-scale bass motion A-D-A spans the passage. Bass motion by fourth or fifth is the essential prolonging motion in tonal music, where it usually arpeggiates an interval within the triad being prolonged or provides consonant support for a neighbor note. In either case, the interval of a fifth is integral to the structure of the triad. In the Bartok, however, the principal sonority is set-class 3-3, not a triad. As a result, the bass motion by fifth is not structurally integral. It does not result from arpeggiation and does not compose-out the initial 3-3. Set-class 3-3 is not horizontalized; it is transposed and inverted so as to keep the C♯ a common tone. The bass motion thus looks tonal and prolongational but it is more meaningfully explained in terms of the contextual associations of this particular piece. This is a middleground pun.

In Stravinsky's music, the musical motions at the highest level frequently



Example 8A. Bartok. *Piano Sonata,* mm. 44–53



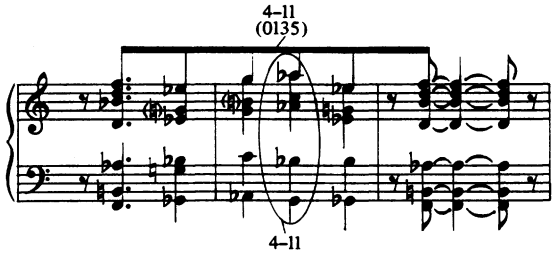
Example 8B. A large-scale bass motion

follow a context-dependent motivic path that mimics traditional tonal patterns. *Symphonies of Wind Instruments* is a piece I have discussed elsewhere, but it is particularly germane to this topic.[14] Its principal melodic fragment is shown in Example 9 as it is harmonized at the beginning of the piece. The melody consists of one form of set-class 4-11 (0135) while the chord at the highpoint is another form of the same set, related to the melodic form by inversion.

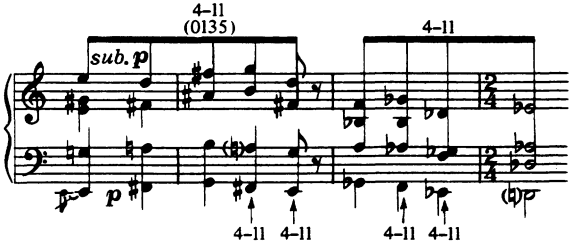
Later in the piece, the same melodic material comes back in a slightly varied form. In its second occurrence (shown in the first part of Example 10), the harmonization includes two forms of set-class 4-11 (0135) as does the third occurrence which immediately follows. In Example 9, the bass begins and ends on F. In the first part of Example 10, the bass begins and ends on E. In the second part of Example 10, the bass descends strongly to D. These three pitches (F, E, and D), widely separated in time but strongly associated thematically, are one pitch shy of creating a large-scale statement of set-class 4-11. The missing pitch, C, is attained at the two most important structural points in the piece, first at Rehearsal #54 (the dramatic climax of the piece) and finally in the last measure, as the bass note of the final chord of the piece (see Example 11). This large-scale descent is also confirmed by many other registral and thematic associations not discussed here.

Two aspects of the descending fourth shown in Example 11 require comment. First, the pitches shown there are not prolonged at a lower level. The pitches are related to each other by the thematic means discussed above, but they do not organize the music lying between them into prolongational spans. Second, while set-class 4-11 (0135) is a prominent linear subset of the diatonic collection (the first four notes of the major scale, for example), Stravinsky has utterly stripped the sonority of that association. The descent in the example represents the composing-out of a central motive of this particular piece; it in no sense traverses scale degrees 4, 3, 2, and 1 of the C-major scale. In its stepwise descent, the background structure of this piece mimics the appearance of a linear progression from tonal music, but the resemblance is deceiving. The underlying processes of this piece are strictly post-tonal.

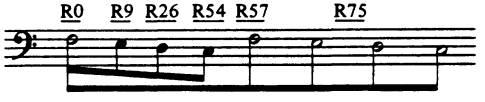
Such mimicry of the prolongational types of tonal music without their original significance is reasonably common in post–tonal music. In light of this fact, let us take another look at the descent to C in Schoenberg's op. 19 no. 2 (see Example 4). The descent cannot be considered prolongational. Instead, the pitches in it derive a more potent meaning from the associations they create with the pitches around them. The concluding C-E in the bass, for example, initiates a statement of set-class 8-19 (01245689), the complement of the central four-note set-class of the piece. Not surprisingly in this particular piece, these sets maximize interval-class 4. Consider next the final pair of thirds in the descent: D♭-F to C-E. These four pitches constitute



Example 9. Principal melodic fragment in Stravinsky, *Symphonies of Wind Instruments*



Example 10. The principal fragment transposed



Example 11. Associational background of Stravinsky, *Symphonies of Wind Instruments*

another four-note set, 4-7 (0145), which occurs numerous times in this piece. A few of them are indicated in Example 4. The concluding chain of four major thirds describes two parallel forms of 4-11 (0135), another set with associations elsewhere in the piece.

Beneath a surface suggestive of tonality, Schoenberg constructs a network of motivic associations. He thus undercuts, and ironically comments on, the conventions he invokes. That descending fourth may look like a prolongational span, but it doesn't function that way. We should not allow ourselves to be fooled: Schoenberg uses his contextual resources to mimic a tonal procedure. This is not a strange, deformed tonal piece. It is a rich, idiomatic post-tonal piece that, with ironic effect, mimics tonal structure. The associational approach I am advocating in no way ignores the obvious tonal allusions in this piece. Rather, it places those allusions in a theoretical framework within which we can make meaningful analytical assertions about them. A tonal/prolongational approach would use these allusions as its point of departure. It would view the idiomatic surface of the piece as a distortion or deformation of "normal" processes and would ultimately flatten out the rich details of the musical surface. A motivic/associational approach takes the opposite stance. It views the tonal allusions from the standpoint of post-tonal musical structure. It shows the power of this music not only to create coherence, but simultaneously to comment ironically on the conventions of the past.

The best post-tonal music contains carefully organized large spans. But as we seek to understand the large-scale organization, the concept of prolongation will help us only for brief, isolated moments. This is not a pleasant realization, but if we cherish the concept of prolongation, we should not allow it to be watered down to encompass anything that just happens to look like a fourth-span or a bass arpeggiation. Prolongation is our most potent analytical tool in a certain musical environment. When that environment changes, it becomes a distraction, what lawyers call an attractive nuisance.

Some people have argued that the musical environment has not really changed all that much, that we have exaggerated the changes in musical structure occuring around the turn of the century. I disagree. Music on both sides of that chronological divide may share certain attributes, but the most profound structural determinant of common-practice tonality—prolongation—plays a negligible role in the music most characteristic of this century. Schenker has provided us with our best understanding of the tonal middleground. The quality of his work should be our inspiration, but if we wish to equal him, we must not follow his prolongational path.

NOTES

1. This is a slightly revised version of a paper presented to the National Conference of the Society for Music Theory at Bloomington, Indiana in November 1986.
2. Analyses by Felix Salzer and Roy Travis will be discussed in this paper. For a thorough evaluative survey of prolongational analyses of twentieth-century music, see James Baker, "Schenkerian Analysis and Post-Tonal Music," in *Aspects of Schenkerian Theory,* ed. David Beach (New Haven: Yale University Press, 1983).
3. For these ideas of adjacency and non-adjacency, I am indebted to Stephen Dembski, particularly his unpublished paper, "Ideas of Order."
4. Pitch-class sets will generally be identified by both their familiar name according to Allen Forte's list of sets in *The Structure of Atonal Music* (New Haven: Yale University Press, 1973) and, in parentheses, their prime form, which provides useful information about their intervallic organization.
5. See Paul Wilson, "Concepts of Prolongation and Bartok's Opus 20," *Music Theory Spectrum* 6 (1984): 79–89, for a somewhat different view. Wilson does consider departure-and-return as prolongational: "The inherent hierarchical resource is present here precisely in this model of departure and return. . . . The prolongational hierarchy really requires no more." (p. 88). At the same time, Wilson acknowledges the weakness of this kind of relationship relative to the more strictly defined prolongations described in this paper.
6. Baker's conclusions on this point exactly coincide: "In my estimation, the analyses of those subscribing to these liberal positions (i.e., "finding prolongations and stratified structure even in the absence of a tonic-dominant axis"), especially of those who accept the possibility of dissonant prolongations, are invariably somewhat arbitrarily based." "Schenkerian Analysis and Post-Tonal Music," p. 168.
7. Roy Travis, "Directed Motion in Schoenberg and Webern," *Perspectives of New Music* 4 (1966): 84–89.
8. Neither Roy Travis nor Felix Salzer, whose analysis of Stravinsky's *Symphony in Three Movements* will be discussed later, used pitch-class set theory. I use it here because of its precision in identifying and comparing harmonies. It provides unambiguous information about the intervallic make-up of any sonority and places that information within a systematic framework.
9. Felix Salzer, *Structural Hearing* (New York: Dover, 1982), p. 194 and p. 188, Figure 417. This work includes prolongational analyses of works by Stravinsky, Bartok, and Hindemith.
10. Salzer, *Structural Hearing,* p. 236, Figure 472C.
11. Pieter van den Toorn, *The Music of Stravinsky* (New Haven: Yale University Press, 1983).
12. Several recent studies have understood the dangers and limitations of prolongational analysis and have produced convincing analysis of twentieth-century works: Allen Forte, "Tonality, Symbol, and Structural Levels in Berg's *Wozzeck*," *The Musical Quarterly* 71 (1985): 474–99; Paul Wilson, "Concepts of Prolongation in Bartok's Opus 20"; James Baker, "Schenkerian Analysis and Post-Tonal Music," (contains an analysis of Scriabin's "Enigme," Opus 52, No. 2). In each of these articles, the distinction between tonal and atonal elements is frankly acknowledged. Forte and Baker in particular focus on compositions that lie on the borderline between tonal and atonal

and whose structure is in some sense a hybrid. In these analyses, the tonal elements receive prolongational treatment while the most idiomatically post-tonal elements are discussed in light of pitch-class set theory. Forte points out, as I do later in this paper, that elements with a tonal/prolongational appearance may often be more meaningfully interpreted from a motivic/associational point of view.

13. This terminology comes from Christopher Hasty's elegant, "Segmentation and Process in Post-Tonal Music," *Music Theory Spectrum* 3 (1981): 54–73. His "segmentation" and my "association" describe the same musical phenomenon: the grouping together of notes according to similarities in register, metrical placement, duration, dynamics, instrumentation, and so forth. These groupings may contain notes widely separated in time.
14. Joseph N. Straus, "A Principle of Voice Leading in the Music of Stravinsky," *Music Theory Spectrum* 4 (1982): 106–124.