

Persistent Notes and Proximity Harmonization

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Several years ago, I published an article about pedal points, in which I attempted to show that the persistent bass notes in the music of Debussy and Ravel helped to engender a new kind of harmony.¹ In the present article, I shall attempt to explore the question of persistent notes in upper voices, and to show that these also were instrumental in the development of new harmonic structures in the twentieth century. For want of a better name, I have called these new harmonies “proximity harmonization” because they are not based on the roots of chords, but on the relative sizes of intervals.

¹Nachum Schoffman, “Pedal Points, Old and New,” *Journal of Musicological Research* 4 (1983), 369-397.

Example 1. Johann Sebastian Bach, *Das Wohltempierte Klavier*, Vol. 1, Fugue No. 1 in C Major, mm. 24-27

The image displays two systems of musical notation for a fugue. Each system consists of two staves, likely representing the right and left hands. The notation includes treble clefs, a common time signature (C), and various musical symbols such as notes, rests, and accidentals. The first system shows the beginning of the fugue with a treble clef on the left staff and a bass clef on the right staff. The second system continues the piece, with the right staff starting with a treble clef and the left staff with a bass clef. The music is written in a clear, black-and-white style, typical of a printed score.

Persistent Melodic Notes

A pedal point is not effective unless it is dissonant with at least some of the chords progressing above it.² Without this contradiction between the sustained pedal note and the bass of the momentary chord, a pedal point would be stale and banal. For example, at the end of the C major fugue in Vol. 1 of *Das Wohltempierte Klavier* (Example 1), a lively progression above the pedal note employs all the diatonic harmonies except III, as well as secondary dominants.

In the case of an inverted pedal point, the same principle applies. Even though the pedal note is now in an upper voice, it functions in the same way. Similarly, there must be at least some dissonance between the pedal note in the upper voice and the basses of the chords progressing under it. For instance, at the end of the G# minor fugue in Vol. 1 of *Das Wohltempierte Klavier* (Example 2), subdominant harmonies and the many passing notes produce considerable dissonance with the pedal note in the soprano.

Example 2. J.S. Bach, *Das Wohltempierte Klavier*, Vol. 1, Prelude No. 18 in G# minor, mm. 27-29

The image shows a musical score for the final measures of the Prelude No. 18 in G# minor by J.S. Bach. The score is written for two staves, treble and bass clef. The key signature is G# minor (three sharps). The time signature is common time. The score shows a sustained G# note in the soprano voice (pedal point) and a complex harmonic progression in the bass line, including subdominant harmonies and passing notes.

²See Heinrich Schenker, *Harmony*, trans. Elisabeth Mann Borgese (Chicago: University of Chicago Press, 1954), 314; Arnold Schoenberg, *Theory of Harmony*, trans. Roy E. Carter (Berkeley: University of California Press, 1978), 209.

On the other hand, a note that persists in an upper voice, against the changing basses of the harmony, may be melodic. Then it is, in its simplest form, the opposite of a pedal point. Such a persistent melodic note is common to all the chords of the harmonization. In contradistinction to the pedal point, the sustained melody note is a member of all the chords, and dissonant with none.

A famous example is Schubert's song "Die liebe Farbe" D795/16 (Example 3). Here the device is programmatic. The monotonous sound of the persistent F# in the piano part is a metaphor for the monochromatic "green" of the text: *Alles grün so rings und rund* (Everything green all round about). This device establishes an image that can then be quoted, as it were, in the following song.³

From the harmonic point of view, "Die liebe Farbe" constitutes a classic example of the device. The fifth degree of the scale sounds in an upper voice at every moment, dominating and limiting the harmonic scheme. In a sense, the repeated F# is a "melody" to be harmonized. This persistent F# permits the employment of the minor dominant and the major tonic chords so typical of Schubert. On the other hand, it precludes the use of subdominant harmonies, since the fifth degree of the scale is not a member of those chords.

The song "Ein Ton" by Cornelius, Op. 3/3, is an even more cogent example (Example 4). Here the subject of the text is the persistent melody note itself.⁴ The persistent note is in the voice part

³Schubert, *Die böse Farbe*, D795/17, from m. 22, at the words "Ach Grün, du böse Farbe du" (Oh green, thou hateful color).

⁴The complete text of the song is as follows:

Mir klingt ein Ton so wunderbar
 In Herz und Sinnen immerdar.
 Ist es der Hauch, der dir entschwebt,
 Als einmal noch dein Mund gebebt?
 Ist es des Glöckleins trüber klang,
 Der dir gefolgt den Weg entlang?
 Mir klingt der Ton so voll und rein,
 Als schloß er deine Seele ein,
 Als stiegst liebend nieder du

Example 3. Franz Schubert, *Die Schöne Müllerin*, D795/16, "Die liebe Farbe," mm. 14-22

The image displays a musical score for the song "Die liebe Farbe" from Franz Schubert's *Die Schöne Müllerin*. It consists of two systems of music. Each system has a vocal line on the right and a piano accompaniment on the left. The vocal line is written in a soprano clef, and the piano accompaniment is in a bass clef. The key signature has one sharp (F#), and the time signature is 3/4. The lyrics are in German and are written below the vocal line.

System 1 lyrics:
 -rein:
 Mein Schatz hat's Gruen so gern, mein Schatz hat's Gruen so gern.

System 2 lyrics:
 Will su-chen ei-nen Cy-pres-sen-hain, ei-ne Hai-de von gru-e-nem Ros - - - ma-

Und sängest meinen Schmerz in Ruh!

(A wondrous tone rings / Incessantly in my heart and spirit. / Is it the last breath, wafted / From your lips as they trembled again? / Is it the mournful tolling of the bell / That accompanied you on your last journey? / That tone rings full and clear in my ears, / As if it enshrined your soul, / As if you had lovingly descended / And, singing, assuaged my grief!)

Example 4. Peter Cornelius, *Trauer und Trost*, Opus 3/3, "Ein Ton,"
mm. 1-8

The image displays a musical score for the first eight measures of the piece "Ein Ton" by Peter Cornelius. The score is written for voice and piano. The vocal line is in the upper staff, and the piano accompaniment is in the lower staff. The key signature is one sharp (F#), and the time signature is 3/4. The lyrics are written below the vocal line.

Sin-nen im - mer - dar.

Mir Klingt ein Ton so wun-der-bar in Herz und

The score shows the vocal line and piano accompaniment for measures 1 through 8. The vocal line is in the upper staff, and the piano accompaniment is in the lower staff. The key signature is one sharp (F#), and the time signature is 3/4. The lyrics are written below the vocal line.

and thus it is literally a melody to be harmonized. As in the Schubert example (Example 3), the melody note is the fifth degree of the scale, and it is common to all the chords. The harmonic vocabulary, however, is more extensive. Every phrase in the song includes either the mediant, or the chord VI⁷, or a diminished seventh.

In the two excerpts from Verdi operas shown in Examples 5 and 6, the persistent melody note is harmonized with even greater freedom. The chords in our examples are almost all chromatically altered inverted sevenths, diminished sevenths, and augmented sixths. Even here, however, the single melody note imposes its limitation upon the harmonization. In Desdemona's prayer from Act 4 of *Otello* (Example 5), the melody note on the fifth degree of the scale is common to all the chords, and so subdominant harmonies are excluded; there are none in our example. Conversely, when the bell rings at midnight in the final scene of *Falstaff* (Example 6), the melody note is the tonic, and consequently there are no dominant harmonies.

Persistent Melodic Notes in Dissonant Contexts

As the level of dissonance rises, the limitations on the harmonization of a persistent melodic note are relaxed. Beyond some critical level of dissonance, the constraints, indeed the very distinctions, begin to disappear.

As instructive example is the sacristan's prayer from the first act of *Tosca* (Example 7). The persistent tonic note F would ordinarily limit the harmonization. But the introduction of complex chords circumvents these constraints. For example, the chord on the word "Spiritu," with C in the bass, could be construed as outlining the dominant-eleventh chord: C-(E)-G-Bb-(D)- and the persistent F as its eleventh. In this way, it is possible to construe the melodic F in this passage as a member of every chord. Alternatively, it is possible to construe the melodic F as an inverted pedal point, and the dissonant intervals as clashes between the chords and the pedal note. The distinction has become blurred.

Ravel goes even further along the same route in "Le Gibet" from

Example 5. Giuseppe Verdi, *Otello*, from Act 4

Des. Ave Ma-ria ple-na di gra-zia, e-let-ta fra le spos-ee le ver-gi-ni sei

Vln

Vla

Cello

Detailed description: This system shows the first line of music. The vocal line (Des.) is in a soprano clef with a key signature of three flats and a 3/4 time signature. It features two triplet markings over the first two measures. The string accompaniment consists of Violin (Vln), Viola (Vla), and Cello parts, each with a single note in the first measure and a half note in the second measure.

Des. tu, sia be-ne-det-toil frut-to, e be-ne - det-ta, di tue ma-ter-ne

Vln

Vla

Cello

Detailed description: This system shows the second line of music. The vocal line (Des.) continues with a triplet marking over the final three notes of the phrase. The string accompaniment continues with the same pattern as the first system.

Des. vi-sce-re, Ge - su.

Vln

Vla

Cello

Detailed description: This system shows the third line of music. The vocal line (Des.) concludes with a fermata over the final note. The string accompaniment continues with the same pattern.

Example 6. Verdi, *Falstaff*, from Act 3, scene 2

Camp in F

Fal. U-na, du-e, tre, quat-tro, cin-que, sei, set-te bot-te,

Vln

Vla

Cello

Cb

Camp in F

Fal. Ot-to, no-ve, die-ci, un-di-ci, do-di-ci. Mez-za-not-te.

Vln

Vla

Cello

Cb

Example 7. Giacomo Puccini, *Tosca*, from Act 1

Flute

Camp

Harp

Sagr.

Vln

Viola

An-ge-lus Do-mi-ni nun-tia-vit Ma-ri-ae, et con-cep-it de Spi-ri-tu Sanc-to.

Example 8. Maurice Ravel, *Gaspard de la nuit*, No. 2, "Le Gibet,"
mm. 28-35

The first system of the musical score consists of three staves. The top staff is in treble clef and contains a melodic line with eighth and sixteenth notes. The middle staff is in bass clef and features a rhythmic accompaniment of eighth notes with slurs. The bottom staff is in bass clef and provides a harmonic foundation with chords and some melodic fragments.

The second system continues the musical piece with three staves. The top staff shows the continuation of the melodic line. The middle staff maintains the rhythmic accompaniment. The bottom staff shows a change in the harmonic structure, with a prominent bass line and chords.

The third system concludes the excerpt with three staves. The top staff features a melodic line that ends with a fermata. The middle and bottom staves provide the final accompaniment and harmonic support for the passage.

Gaspard de la nuit (Example 8). The texture is actually the same as that in our Schubert excerpt (Example 3). There is a melodic line supported by a harmonic progression with its own functional bass, but there is also a persistent note in an upper voice, written B \flat or A \sharp according to the exigencies of the harmony. However, in contradistinction to the situation in the Schubert excerpt, the persistent melodic note no longer dominates and limits the harmonic scheme. The dissonance of the chords themselves obscures the dissonance between the persistent melodic note and the chords. In the third measure of our example, for instance, the persistent A \sharp clashes with the B of the chord. But in the following measures, where the B \flat /A \sharp is a member of the chord, there are no fewer dissonances. The seconds resulting from the clash between the persistent note and the harmony are lost among the seconds in the harmony itself.

In the fully dissonant harmony of twentieth-century music, distinctions between different dissonances are no longer of great importance. This phenomenon can be observed in *Soundfigures*⁵ by Hayim Alexander. This uncompromisingly dodecaphonic work consists of twelve variations on the same row. In Variation No. 8 (Example 9), the note G is maintained as a persistent note, even during changes in the transpositions of the row. In the context of such total atonality, it is no longer necessary to distinguish between the dissonance caused

Example 9. Hayim Alexander, *Soundfigures*, No. 8, m. 7

⁵The title in Hebrew is *B'not Kol*.

when the persistent note clashes with the chords, and the ambient dissonance of the entire texture. The distinctions that were relevant in tonal harmony are now irrelevant.

In such a dissonant environment, when the bass is no longer functional in the traditional sense, the persistent note can even migrate within the texture. It may be in the bass at one moment, and in the treble at the next. The distinctions between a pedal point, an inverted pedal point, and a persistent melody note have all become blurred.

Bartok's sixth Bulgarian Dance, No. 153 at the end of the *Mikrokosmos* (Example 10) seems almost to have been written to demonstrate this principle. In the second half of our example, the complete texture is inverted. The harmonic progression is organized around the persistent notes, whether they are melodic notes or pedal points.

A prodigious example of such a migrating persistent note occurs in the murder scene in *Wozzeck*, Act 3, scene 2. Willi Reich, in his commentary on the structure of the work, describes this scene as follows:

The low B of the contrabasses ... now becomes the unifying factor, the coordinating principle of the murder scene. It appears here again in the greatest variety of ways, as an organ-point, as a stationary middle or upper voice, doubled in many octaves and heard in all conceivable registers and colors.⁶

Example 11 is an extract of several measures from the beginning of this scene, showing how the persistent note B migrates from one instrument to another, and from one register to another. None of the traditional terminology is applicable here. Instead, one might say that Berg has made this note a *Klangfarbenmelodie* to be harmonized and orchestrated.

The piece by Schoenberg that first employed the *Klangfarbenmelodie* was *Sommormorgen an einem See (Farben)*, Op.

⁶Willi Reich, "A Guide to *Wozzeck*," *The Musical Quarterly* 38 (1952), 17.

Example 10. Béla Bartok, *Mikrokosmos*, Vol. 6, *Six Dances in Bulgarian Rhythm*, No. 153, mm. 1-16

The first system of musical notation consists of two staves. The upper staff is in treble clef and contains a series of chords and rests. The lower staff is in bass clef and features a rhythmic pattern of eighth notes with stems pointing up, characteristic of Bulgarian rhythm. The time signature is 3/8.

The second system of musical notation consists of two staves. The upper staff continues the chordal texture from the first system. The lower staff continues the eighth-note rhythmic pattern. The time signature is 3/8.

The third system of musical notation consists of two staves. The upper staff features a melodic line with eighth notes and some accidentals. The lower staff continues the rhythmic pattern. The time signature is 3/8.

The fourth system of musical notation consists of two staves. The upper staff continues the melodic line. The lower staff continues the rhythmic pattern. The time signature is 3/8.

Example 11. Alban Berg, *Wozzeck*, Act 3, scene 2, mm. 71-80

Musical score for the first system, measures 71-80. The instruments are BClarin in Bb, Bsn 1,2, Trbn, and CB. The time signature changes from 3/4 to 2/2. The Bsn 1,2 part features a triplet and a trill. The Trbn part has a trill. The CB part has a trill.

Musical score for the second system, measures 71-80. The instruments are Bsn 1,2, Bsn 3, CBSn, Vln, and CB. The time signature is 2/2. The Bsn 1,2 part has a trill and a triplet. The Bsn 3 part has a triplet of 12 notes. The CBSn part has a trill. The Vln part has a trill with five notes. The CB part has a trill.

Example 12. Arnold Schoenberg, *Fünf Orchesterstücke*, Opus 16/3,
Sommernorgen an einem See (Farben), mm. 6-9

The image displays a musical score for the first nine measures of 'Sommernorgen an einem See (Farben)' from Arnold Schoenberg's 'Fünf Orchesterstücke, Opus 16/3'. The score is arranged in a system of staves, with each staff labeled on the left. The instruments and their parts are as follows:

- Fl** (Flute): Treble clef, playing a melodic line with eighth and sixteenth notes.
- Ehn** (English Horn): Treble clef, playing a melodic line with eighth and sixteenth notes.
- Clar Bb** (Clarinet in B-flat): Treble clef, playing a melodic line with eighth and sixteenth notes.
- Bcl Bb** (Bass Clarinet in B-flat): Bass clef, playing a melodic line with eighth and sixteenth notes.
- Bsn** (Bassoon): Bass clef, playing a melodic line with eighth and sixteenth notes.
- Cbsn** (Contrabassoon): Bass clef, playing a melodic line with eighth and sixteenth notes.
- Horn in F**: Treble clef, playing a melodic line with eighth and sixteenth notes.
- Trpt Bb** (Trumpet in B-flat): Treble clef, playing a melodic line with eighth and sixteenth notes.
- Trbn** (Trombone): Bass clef, playing a melodic line with eighth and sixteenth notes.
- Vla** (Viola): Treble clef, playing a melodic line with eighth and sixteenth notes.
- CB** (Cello): Bass clef, playing a melodic line with eighth and sixteenth notes.

The score is written in a key signature of one flat (B-flat major or F minor) and a 3/4 time signature. The music features a complex, rhythmic texture with many rests and dynamic markings. The notation includes various note values, rests, and articulation marks.

16/3 (Example 12). In this piece, however, Schoenberg actually carries the device a step further. Rather than a persistent single note, there is a persistent chord. Above, below, or within the register of this sustained chord there are disconnected, sporadic little phrases. Such a texture harmonized with traditional tonal chords would be trivial and boring. Here, the absence of harmonic progression is made possible by the atonality. The texture is dominated by a sustained dissonant sonority, static in spite of the shifting notes and tone colors within it. The sporadic phrases are like satellites, momentarily appearing in different registers, but incapable of affecting, or of moving, the central sonority.

Bartok employed the same texture, with the same level of dissonance, for the same programmatic reason. Like Schoenberg's tone picture of a summer morning by a lake, Bartok's *Musiques Nocturnes* from *Out of Doors* depicts the sounds of a summer night (Example 13). The central static sonority consists of five consecutive semitones. This cluster persists throughout the piece; only the order in which the notes are sounded changes. The sporadic little phrases, here imitations of actual night sounds, behave like those in the Schoenberg piece (Example 12). Here also, they appear in all registers, but are unable to alter the central sonority. On the contrary, it is the central, static sonority that dominates the whole texture.

Persistent Notes "Harmonized" by Proximity

In the absence of traditional tonal functional harmony, one possible way of organizing the chordal aspect of the music is to construct the chords around a fixed note or group of notes, and to order their relationships by proximity to this fixed center. In such a structure, the organizing principle is not the degree of consonance or dissonance, nor the distance to a tonic, but the sizes of the intervals separating any note from the fixed persistent note. In such a context, intervals are

Example 13. Bartok, *Out of Doors*, No. 4, *Musiques Nocturnes*, mm. 1-5

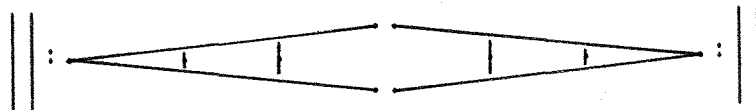
The musical score consists of three staves: Violin I (top), Violin II (middle), and Viola (bottom). The music is written in a key signature of one flat (B-flat) and a 3/4 time signature. The notation includes various rhythmic values such as sixteenth and thirty-second notes, as well as rests. The score is divided into two systems. The first system contains measures 1 through 4, and the second system contains measures 5 through 8. The Viola part has a 'Bve.' marking above it in measures 1 and 2. The Violin I part has a 'Horn.' marking below it in measure 5. The Violin II part has a 'Bve.' marking above it in measure 5. The Viola part has a 'Bve.' marking above it in measure 5. The score is written in a complex, rhythmic style characteristic of Bartok's 'Musiques Nocturnes'.

and two digits for a distance smaller by two scale degrees, we would arrive at the table: B=0; C=9; E=7; G#=5. Therefore, the number that Lucy dials is 759590.

Once again, an example from Bartok seems almost didactic in its itemization of various possibilities. In the course of the third Bulgarian Dance, No. 150 at the end of the *Mikrokosmos*, the melody is presented in several different settings (Example 15). The initial setting, at m. 5, is a simple, straightforward inverted pedal point. Later, at m. 31, the melody is played together with its inversion. This constitutes a simple proximity harmonization, with the melody receding from and approaching the central sustained note symmetrically. At m. 50 comes the most complex setting, at the climax of the piece. The symmetrical fluctuation of proximity is out of phase, to create a canon, and the central sustained unison has become a seventh.⁸

Charles Ives was perhaps the first composer to employ such proximity harmonizations. Attempting to organize progressions of chords in non-traditional ways, he constructed palindromes of expanding and contracting intervals.

So – half-tone chords opening up [into] wider and wider chords, and back again:



This may not be a nice way to write music, but it's one way! – and who knows the only real nice way?⁹

In verse No. 9 of Ives's *Psalms 90* (Example 16), the organizing principle is the proximity of the notes in the chords to a sustained pedal

⁸For similar analyses of works by Bartok, see Jonathan W. Bernard, "Space and Symmetry in Bartok," *Journal of Music Theory* 30 (1986), 185-201.

⁹Charles Ives, *Memos*, ed. John Kirkpatrick (New York: Norton, 1972), 64.

Example 15. Bartok, *Mikrokosmos*, Vol. 6, *Six Dances in Bulgarian Rhythm*, No. 150. a: mm. 5-8; b: mm. 31-34; c: mm. 58-61

The image displays three systems of musical notation, labeled 'a', 'b', and 'c', each consisting of two staves (treble and bass clefs). System 'a' (mm. 5-8) features a melody in the treble staff with eighth-note patterns and a bass line with dotted rhythms. System 'b' (mm. 31-34) shows a similar melodic structure with some chromaticism in the bass line. System 'c' (mm. 58-61) continues the melodic development with more complex rhythmic patterns and chromatic movement in both staves. The notation includes various note values, rests, and dynamic markings.

Example 16. Charles Ives, *Psalm 90*, mm. 60-65

mf *cresc.*

S
9. For all our days are passed a - way in thy wrath:

A
9. For all our days are passed a - way in thy wrath:

T
9. For all our days are passed a - way in thy wrath:

B
9. For all our days are passed a - way in thy wrath:

Organ
9 8 7 6 5 4 3 2 1

Example 16 continued

fff *dim.* 1 2 3 4 5 6 7 8 9 *f*

S
we spend our years as a tale that is told.

A
we spend our years as a tale that is told.

T
we spend our years as a tale that is told.

B
we spend our years as a tale that is told.

Organ
we spend our years as a tale that is told.

note, and this proximity changes symmetrically. The verse begins on a unison C. At each syllable, the chord expands symmetrically above and below this C, reaching its greatest dimensions at the middle of the verse. Then the chords contract in reverse order, ending on the unison C. Meanwhile, the organ sustains a pedal-point C. The date of this work, 1896-1901, probably establishes Ives's precedence as the first composer to write such a progression.

By the way, the durations of the chords in this passage also constitute a palindrome. The digits above the chords indicate the duration of each chord in number of sixteenth-notes: from 9 to 1 and back to 9. There is also a palindrome of dynamics: a crescendo from *f* to *fff*, and then a diminuendo back to *f*.

This compositional device is carried much further in *Patterns*¹⁰ by Hayim Alexander (Example 17). A central note, C#/Db, persists throughout the work.¹¹ The sonority consists of an expanding and contracting "bandwidth" of notes contiguous with the fixed note. The progression of chords is accomplished by the addition and subtraction of neighboring notes above and below the fixed note, at increasing and decreasing distances. In this manner the pitch structure of the entire work is governed by the fluctuating proximity of all the notes to the constant central note.¹²

Proximity Harmonization

Once established as a valid compositional device, proximity

¹⁰The title in Hebrew is *Tavniot*.

¹¹At the first Arthur Rubinstein International Piano Master Competition, held in Jerusalem in 1974, this work was the set piece that all the contestants were required to perform. In this original version, the note C#/Db persisted throughout the piece. In the final published version, the composer added two sections, mm. 50-59 and 73-76, in which this central note is abandoned. My comments refer only the earlier version.

¹²For analyses of works by Stravinsky along similar lines, see Joseph Straus, "Stravinsky's Tonal Axis," *Journal of Music Theory* 26 (1982), 261-290.

Example 17. Alexander, *Patterns*, mm.19-22

The image displays a musical score for two staves. The left staff contains a series of chords, with several of them enclosed in rectangular boxes, suggesting sustained notes. The right staff contains a melodic line with various note values and rests, also with some notes enclosed in boxes. The music is written in a single system with a treble clef and a key signature of one flat.

Example 18. Bartok, *Music for Strings, Percussion and Celeste*, Mvt. I, mm. 78-79

The image displays a musical score for Bartok's *Music for Strings, Percussion and Celeste*, Mvt. I, measures 78-79. The score is written for five string parts (Violin 1, Violin 2 & 3, Violin 4, Viola, and Cello) and a Celesta. The Celesta part is written in a treble clef and features a complex, rhythmic pattern of eighth and sixteenth notes, with a prominent melodic line. The string parts are written in various clefs (treble and bass) and feature a mix of sustained notes and rhythmic patterns. A dashed line labeled "Bve" (Basso Continuo) is positioned above the Violin 1 staff, indicating a figured bass line. The score is set in a key with one flat (B-flat major or D minor) and a 3/4 time signature. The measures are numbered 78 and 79 at the bottom of the staves.

harmonization is no longer dependent upon the presence of a persistent note or chord. A coherent pattern of change in the sizes of the intervals may itself serve as the organizing force in a series of chords.

Yet again, Bartok provides a clear example. During the first movement of the *Music for Strings, Percussion, and Celeste* (Example 18) the fugue subject is played together with its inversion against a fixed chord consisting of four contiguous semitones.¹³ This produces a symmetrical proximity harmonization, in a texture reminiscent of the *Musiques Nocturnes* (Example 13). But a few measures later, a similar progression is utilized to produce the concluding cadence of the movement, this time without the fixed chord (Example 19). This cadence is not harmonic in the traditional sense. On the contrary, it consists entirely of expanding and contracting intervals that resolve by converging to a final unison.

Example 19. Bartok, *Music for Strings, Percussion and Celeste*, Mvt. I, mm. 86-88

The image shows a musical score for two violins, Vln 1 and Vln 2, in the first movement of Bartok's *Music for Strings, Percussion and Celeste*. The score is written in treble clef with a key signature of one flat (B-flat). The time signature is 3/8. The music consists of two staves. Vln 1 starts with a quarter rest, followed by a quarter note G4, a quarter note A4, a quarter note B4, a quarter note C5, a quarter note B4, a quarter note A4, a quarter note G4, and a half note F#4. Vln 2 starts with a quarter rest, followed by a quarter note G4, a quarter note A4, a quarter note B4, a quarter note C5, a quarter note B4, a quarter note A4, a quarter note G4, and a half note F#4. The two staves are in unison.

¹³For similar analyses of works by Bartok, see Richard Cohn, "Inversional Symmetry and Transpositional Combination in Bartok," *Music Theory Spectrum* 10 (1988), 19-42.

In his song “Soliloquy,”¹⁴ Ives employs another of his palindromes of chords, but this time without benefit of a persistent note or chord. Although the entire song is palindromic, our Example 20 shows only the central measures, containing the central part of the palindrome. The size of the intervals comprising the several chords progress in descending order: minor sevenths, perfect fifths, perfect fourths, major and minor thirds alternately, major seconds, semitones; and then in reverse, in ascending order.¹⁵

Example 20. Ives, “Soliloquy, or a Study of 7ths and Other Things,”
mm. 10-11

The image shows a musical score for two staves, treble and bass clef. The score is divided into two measures, mm. 10 and 11. The notation is complex, featuring various intervals and chordal structures. The intervals progress in descending order: minor sevenths, perfect fifths, perfect fourths, major and minor thirds alternately, major seconds, semitones; and then in reverse, in ascending order. The score is marked with '8ve' above the staves, indicating an octave shift. The notation includes various intervals and chordal structures, with '8ve' markings above the staves.

Resolution to a Major Triad

One of Hindemith’s mannerisms was the surprising yet satisfying major triad that he employed to conclude a dissonant work. In some cases, this major triad sounded like a non sequitur. In all cases, it seemed to re-establish traditional harmony as the basis for all his

¹⁴Ives, “Soliloquy, or A Study of 7ths and Other Things,” in *34 Songs, New Music* 7/1 (1933), 24. For analyses of this song, see Henry and Sidney Cowell, *Charles Ives and his Music* (London: Oxford University Press, 1955), 157-159; Schoffman, “Serialism in the Works of Charles Ives,” *Tempo* 138 (September 1981), 27-28.

¹⁵In the version printed in *34 Songs*, the second chord in m. 11 contains an additional D#, but this is probably a misprint, so it has been omitted here. Several other irregularities of orthography have also been altered in our example.

innovations, perhaps even to apologize for the preceding dissonances.

This concluding major triad appears once again in the present context, as the resolution of a progression organized on the basis of proximity. In this case, the logical and consistent motion of the voices is resolved by the final major triad, which suddenly releases the tension in the preceding progression. The proximity harmonization has its own inner logic, derived from the expansion and contraction of the intervals. The final triad, as it were, cuts the Gordian knot, returns us to a happier and more innocent harmony, and provides an eminently satisfying conclusion.

An outstanding example occurs at the conclusion of Penderecki's *Stabat Mater* (Example 21). By the gradual addition of neighboring notes, a chord coagulates, as it were, around the sustained note D. One after another, notes are added, until an extremely dissonant chord has been built up. Then, on the last word, "gloria," a glorious D-major triad brings the work to a triumphant conclusion.

A more complex example occurs in *A Ceremony of Carols* by Britten. In the song "In Freezing Winter Night" (Example 22) the canonic texture of the choir parts creates proximity harmonization, in a manner similar to that observed in Bartok (Example 15c). Here, however, the chords expand in only one direction, upward from the pedal point D. They reach consecutive high points of a minor sixth, an octave, and an eleventh, before sinking back to the pedal note. At the conclusion of the song (Example 23) the same chords, instead of simply falling back upon the pedal note, resolve to a radiant G-major triad.

In Britten's *War Requiem*, a proximity harmonization resolving to a major triad occurs three times, at three crucial moments, in three variants. Example 24 shows the first, which is the simplest. The lower voice, sung by the altos and the basses, consists not of a single note but of parallel fifths. The contrary motion between this and the upper voice, sung by the sopranos and tenors, creates a proximity harmonization. Twice this progression returns to the tritone from which it began. But at the last syllable, the whole structure of dissonance suddenly collapses, as it resolves to a major triad.

Example 21. Krzysztof Penderecki, *Stabat Mater*, mm. 97-117

The musical score is arranged in three systems. The first system includes parts S1, A1, T1, and B1. S1 has lyrics "Chri-ste Chri-ste Chri-ste". A1 has lyrics "-xi-re Da per ma-trem me ve-ni-re Ad pal-man vic-to-ri-". T1 and B1 have lyrics "Chri-ste". The second system includes parts S2, A2, T2, and B2. T2 has lyrics "Chri-". The third system includes parts S3, A3, T3, and B3. B3 has lyrics "Chri-ste Chri-ste". The score features complex rhythmic patterns, including many eighth and sixteenth notes, and polyphonic textures with overlapping lines.

Example 21 continued

The musical score consists of 12 staves, each representing a different voice part. The lyrics are distributed across the staves as follows:

- S1:** Quan - do cor - pus Fac ut
- A1:** -ae Quan - do cor - pus mo - ri - e - tur Fac ut a - ni - mae
- T1:** Quan - Fac ut
- B1:** -do ut Fac
- S2:** (No lyrics)
- A2:** cor - pus Fac ut
- T2:** -ste Quan - do cor - pus Fac ut
- B2:** Quan - do cor - pus mo - ri - e - tur Fac ut a - ni - mae
- S3:** (No lyrics)
- A3:** (No lyrics)
- T3:** (No lyrics)
- B3:** Quan - do Fac ut

Example 21 continued

The musical score consists of 12 staves, each representing a different vocal part. The lyrics are in Latin and are distributed across the staves as follows:

- S1:** Pa - ra - di - si glo - ri - a
- A1:** do - ne - tur Pa - ra - di - si glo - ri - a
- T1:** Pa - di - si glo - ri - a
- B1:** - ra - - si glo - ri - a
- S2:** Pa - ra - di - si glo - ri - a
- A2:** Pa - ra - di - si glo - ri - a
- T2:** Pa - ra - di - si glo - ri - a
- B2:** do - ne - tur Pa - ra - di - si glo - ri - a
- S3:** Fac ut a - ni - mae do - ne - tur Pa - ra - di - si glo - ri - a
- A3:** Pa - ra - di - si glo - ri - a
- T3:** Pa - ra - di - si glo - ri - a
- B3:** Pa - ra - di - si glo - ri - a

Example 22. Benjamin Britten, *A Ceremony of Carols*, Opus 28/8, "In Freezing Winter Night," mm.1-13

Be-hold a sil-ly ten-der babe In free-zing win-ter
Be-hold a sil-ly ten-der babe In
Be-hold a babe In free - - - zing
night In home-ly man-ger trem-bling lies A- las a
free-zing win-ter night In home-ly man-ger trem-bling lies A-
night In man - - - ger trem - - - bling lies A-
pi - - teous sight!
-las a pi - - teous sight!
-las A - las a pi - - teous sight!

Example 23. Britten, *A Ceremony of Carols*, Opus 28/8, *In Freezing Winter Night*, mm. 49-55

The image displays a musical score for Example 23, consisting of five vocal staves and a piano accompaniment. The vocal parts are arranged in a choir setting, with the lyrics: "his hum-ble pomp which he from Heav'n doth bring." The piano accompaniment features a steady rhythmic pattern of eighth notes in the right hand and chords in the left hand. The score includes various musical notations such as treble clefs, key signatures, and dynamic markings like *mm...*.

Example 24. Britten, *War Requiem*, Opus 66/1, *Requiem Aeternam*,
Kyrie

The image shows a musical score for the 'Kyrie' section of Britten's *War Requiem*. The score is written for five parts: Soprano (S), Alto (A), Tenor (T), Bass (B), and Bells. The lyrics are: 'Ky-ri-e e-le-i-son, Chri-ste e-le-i-'. The notation includes vocal staves with lyrics and a bell staff. The music is in a key with one sharp (F#) and a 4/4 time signature. The lyrics are: Ky-ri-e e-le-i-son, Chri-ste e-le-i-.

Example 24 continued

The musical score is written for five parts: Bells, Soprano (S), Alto (A), Tenor (T), and Bass (B). It is in 3/4 time and features a canon-like texture. The lyrics are: "Ky-rie e - le - i - son." The Bells part consists of a single line of music. The vocal parts (S, A, T, B) are arranged in a canon, with each voice part entering the melody at a different time. The lyrics are: "Ky-rie e - le - i - son." The score is written in a single system with five staves. The Bells part is on the top staff, followed by S, A, T, and B from top to bottom. The lyrics are written below the vocal staves.

Conclusion

Conventional histories of twentieth-century music often assume that the only systematic alternative to traditional harmony was dodecaphony and serialism. The identification of proximity harmonization reveals that there are — that there always were — other alternatives. Cases of proximity are often perceived as “merely” contrary motion or, at best, as unique occurrences. Actually, proximity constitutes an independent, albeit subsidiary, principle of chordal organization.

The organization of a progression of chords according to the physical sizes of the intervals is independent of traditional consonance and dissonance, no less than is serial organization. In proximity structures, the intervals are also treated as absolute magnitudes. Proximity harmonizations, however, are audible in a way that serial structures are not, and they even permit the inclusion of traditional major triads. The very existence of proximity expands the harmonic horizon.