

COMPLEMENTARITY AS A GENERATOR OF MUSICAL CONTENT IN BERG'S OP. 5
NO. 4 FOR CLARINET AND PIANO

by,

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Theodor Adorno claims that the structural concept in the fourth piece of Berg's op. 4 is "the application of the rondo form of the principal of integral development." He adds: "The 'theme' is made up of a chord sustained over four bars in unvarying syncopated rhythm, with a chromatic opposing line in the clarinet: so [sic], no theme at all."¹ His argument is based on the fact that the opening piano sonority returns at m. 11, and yet again at the end of the piece as a "dissolution of the thematic chord."² On the surface this assertion seems quite sound, but the adherence to a rondo idea has a tendency to relegate the remaining "non-thematic" material to a category of lesser importance. I do not believe that this is true. On the contrary, a deeper study of the piece reveals an extremely organic and coherent narrative that grows directly out of the opening interaction between the piano and clarinet.

The ominous piano ostinato that lasts throughout the first four measures of the piece disguises the inherent complexity of its sonority. This pitch class set [01358], member of set class (014580, has several unique properties, many of which are utilized by Berg. One important quality is that it retains four out of five pitch classes at T_4 and at T_8 . Example 1 compares these transpositions in normal order as well as their composite hexachord.

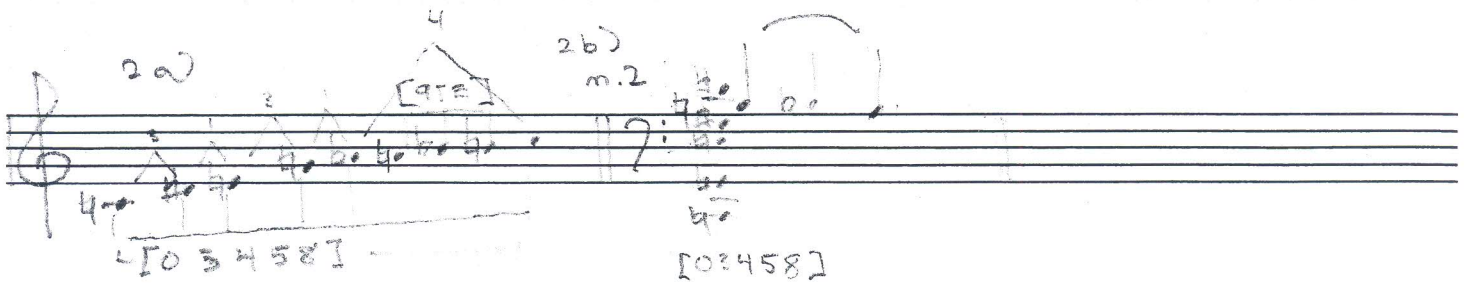
¹ Adorno, Theodor W. *Alban Berg: Master of the Smallest Link*. Trans. Juliane Brand and Christopher Hailey. New York: Cambridge University Press, 1991. Page 71.

² Ibid.

Handwritten musical notation and pitch-class sets for Example 1. The notation is written on a single staff with a treble clef and a key signature of one sharp (F#). The notes are: 1a) T₀: F#, G, A, B, C; 1b) T₄: D, E, F#, G, A; 1c) T₈: B, C, D, E, F#; 1d) composite: F#, G, A, B, C, D. Below the staff, the pitch-class sets are listed: 1a) [0 3 4 7 8], 1b) [4 7 8 E 0], 1c) [8 E 0 3 4], 1d) [3 4 7 8 E 0]. A bracket under the first three sets points to the composite set [0 1 4 5 8 9].

Example 1: Pitch-class set [01378] at T₀, T₄, and T₈, and composite hexachord.

The composite of these four pentachords, shown here as example 1d), is important because it is the hypothetical pitch class set that would render the opening piano sonority entirely symmetrical. The clarinet's entrance in measure 2 on a B natural literally completes this symmetrical hexachord. The clarinet immediately shifts away from the stability of the symmetrical construct by descending in semitones, forming the pitch class set [9TE] in its own part. A second descending chromatic line begins on C# in measure 3, forming the pitch class set [TE01]. Given the ubiquity of chromaticism in Berg's music, it is not surprising that Adorno was somewhat dismissive of the clarinet's line. Yet his conclusion misses a rather important element of interaction between the piano sonority and this first chromatic line. The near symmetry of [01358] is precisely the quality that [9TE] is designed to exploit, and it does so by chromatically filling in the largest intervallic gap (interval class 4), between pitch classes 8 and 0. Example 2 demonstrates this relationship.



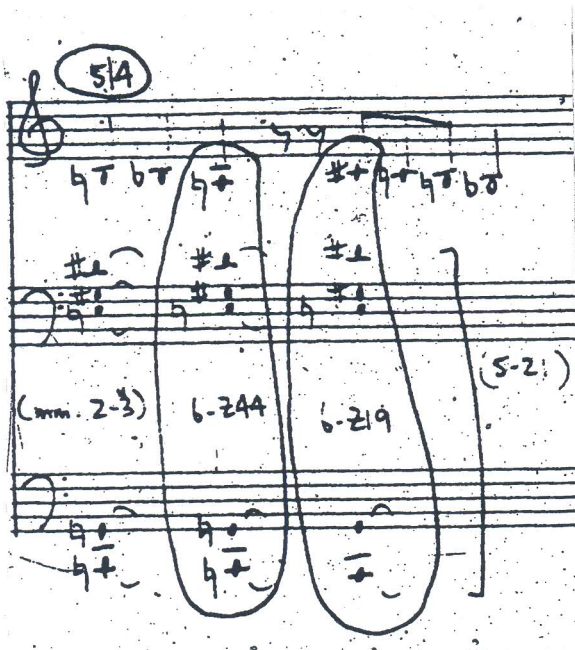
Example 2: [9TE] fills in the largest intervallic gap in [03458]

The concept of chromatically filling in space suggests complementary relationships, a theme that will pervade the texture of the entire movement and that will be discussed in more detail further on. For the next set of unique properties of pitch class set [01378], I am indebted to a master's thesis by Kathleen M. Breedyk.³ I highly recommend exhaustive and engaging analysis for deeper study, but for our purposes I will focus mainly on one specific analysis of the vertical pitch class set coincidences at the opening of the movement. Example is copied directly from Breedyk's thesis.⁴

1
3

³ Breedyk, Kathleen M. *Tonal and Atonal Principles in Alban Berg's Viert Stucke fur Klarinette und Klavier, Op. 5.* (Master's Thesis). The University of Alberta Department of Music. Edmonton, Alberta. Fall 1988.

⁴ Ibid. Page 85.



Example 3: Z-relationships of hexachordal pitch class sets [014789] and [013478]. Members of set classes (012569) and (013478), respectively.

The Z relationship is intriguing because both of the segmented hexachords in example 3 have the same interval class vector: $\langle 313431 \rangle$. Notice the abundance of interval class 4 and the relative paucity of interval class 2 and 6. However, it strikes me as arbitrary to single out these two verticalities simply because they are Z-related, and leave out the other pitch coincidences that are clearly evident in example 3. For instance, the combination of the piano's [01378] with the clarinet's first pitch, B, results in the symmetrical construct that we previously discussed. (See example 1d). Wondering if other additions to [03478] might yield interesting features, I set about combining it systematically with each note of its complimentary set. The results are shown in Example 4. An asterisk adjacent to each resultant set's corresponding roman numeral indicates that the set actually appears in Op. 4 no. 5.

Handwritten musical notation on two staves. The top staff is labeled I*, II, III, IV and the bottom staff is labeled V*, VI*, VII*. Each measure contains a sequence of notes and two sets of numbers in brackets and parentheses. For example, under I* are [0 1 3 4 7 8] and (0 1 3 4 7 8). Under V* are [0 1 4 7 8 9] and (0 1 2 5 6 9).

Example 4. Systematic introduction of each note of the complement of [03478], [9TE1256] to form 7 hexachords.

Example 5 shows a vertical comparison of the interval class vectors of each of these 7 hexachords.

	Interval Vector	Set Class
I)	313431	(013478)* (Z-related to V)
II)	322431	(014568)
III)	323430	(013458)
IV)	323421	(012458)
V)	313431	(012569)* (Z-related to I)
VI)	303630	(014589)* (transpositionally symmetrical at T ₄ , T ₈)
VII)	223431	(014579)*

Example 5: Interval Class vectors of the 7 hexachords from Example 4.

If Z relationships are important for having identical interval class vectors, then I would argue that similar interval class vectors deserve some consideration as well. Notice that interval class 4 is dominant throughout. Setting aside hexachord VI for a moment, it is clear that when each of the other 6 hexachords are compared to each other they only differ in two interval class categories, the other four being identical. The two exceptions to this are notated in example 5: the Z relationship of I and V, and the transpositionally symmetrical VI, which has the effect of creating 6 interval class 4s at the expense of interval class 2 and 6.

One more important relationship emerges as a result of this study. The literal complement of [03478], shown in the tag to Example 4 as [9TE1256], is a member of set class (0124589). At T_{10} , [9TE1256] transposes to [E013478]. This pitch class set is identical to the pitch material found in m. 11 and 12, shared between the piano and clarinet. In this case, we hear the opening piano sonority along with B natural and C sharp. Not incidentally, these notes begin both chromatic descents in the clarinet in measures 2 and 3. We have already heard the piano sonority against these two pitches, but now they are clearly stated together in m. 11. Remarkably, the addition of the dyad [E1] to [03478] has transformed [03478] into an abstract complement of itself. Example 6 demonstrates this relationship.

complement

T_4

[0 3 4 7 8] [9 T E 1 2 5 6] [E 0 1 2 4 7 8]

(0 1 4 5 8) (0 1 2 4 5 8 9) (0 1 2 4 5 8 9)

Example 6: Abstract complementarity between [03478] and [E013478].

Berg seems to have chosen a set class, (01458), that retains a remarkable portion of intervallic identity even against the introduction of complimentary pitches. At this juncture, an obvious and reasonable test of the significance of this premise would be to put a different pentachord through the same trials. I chose pitch class set [01367] at random and did just that. I will spare the reader a chart listing normal forms, and will simply parallel the set class and interval vector results of Example 5, here shown in Example 7.

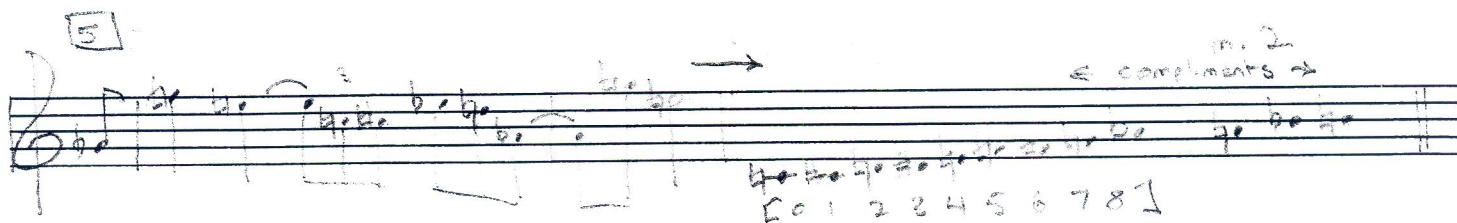
	Interval Vector	Set Class	
I)	422232	(012367)	
II)	324222	(013467)	(Z-related to 012369)
III)	332232	(012467)	(Z-related to 012368)
IV)	322242	(013678)	
V)	224223	(013679)	
VI)	224232	(014679)	(Z-related to 023679)
VII)	322332	(012478)	(Z-related to 012568)

Example 7: Resultant set classes and interval vectors of the systematic introduction of all complement pitches to pitch class set [01367], member of set class (01367).

Immediately apparent in example 7 is the fact that no one interval class is dominant throughout each set, in contrast to interval class 4 in Example 5. Comparison of interval class vectors shows that while some of them share 4 of the same distribution of interval classes (ie. V and VI, and II and IV), many of them do not (ie. VI and VI, I and II, III and V). Example 6 includes the Z-relations for sets II, III, VI, and VII. In example 5, Berg's set yield a z related

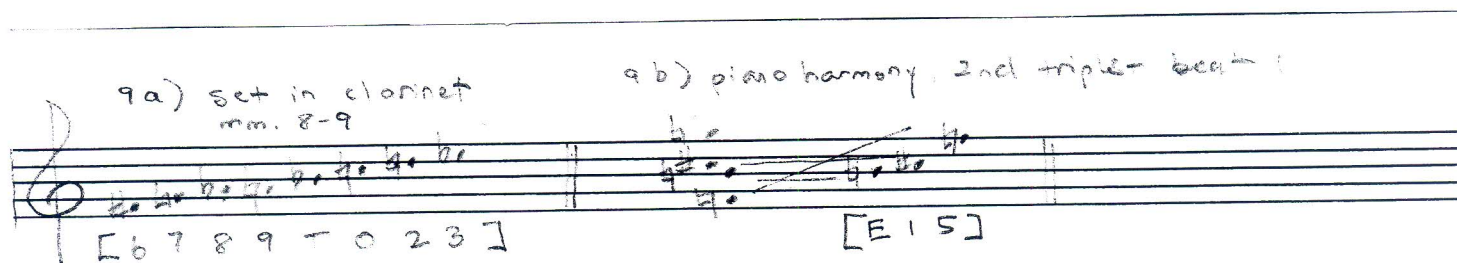
pair when combined with pitches from its complement. My arbitrarily chosen set suggests 4 Z relationships that are not fulfilled at all within the process. It is not at all surprising that this should be so. Exactly 60% of hexachordal set classes are Z-related to another hexachord. It is only when they are paired with their Z partner that they gain significance. That a matched pair exists in Op. 5 No. 4, and that they are both used within the course of the piece, suggests that Berg understood the significance of the pairing. [03478].

Lastly among the important traits of [13478], its specific, ordered arrangement in the piano poses an aural challenge. From a tonal perspective, the lowest three notes, C, G, and E quite persuasively suggest an emphasis on C. The upper G# and D# can be heard as color tones (sharp 5 and sharp 9), or as suggesting a poly-chord (A flat major over C major). The augmented triad of C, E, and A flat can also be heard prominently. The chromatic clarinet interjection at bar 2 seems to be sabotaging the blatant tonal suggestions of the piano sonority by filling in its empty space. When the piano lays tacet at bar 5, the clarinet plays a recitative like figure that seems to negate a tonal center. The composite set of pitches from the upbeat to bar 5 through the 2nd beat of bar 6 seems to be freely atonal. However, when arranged in normal order [012345678], it reveals itself to be the literal complement of [9TE], the opening chromatic segment in the clarinet part, measure 1. So the seemingly unrelated clarinet recitative can be interpreted as a complementary reaction to its own initial statement, which was itself a reaction to the arrangement of the piano sonority. Example 8 demonstrates this relationship.



Example 8: Clarinet Line at m. 5, arranged in normal order followed by its complement.

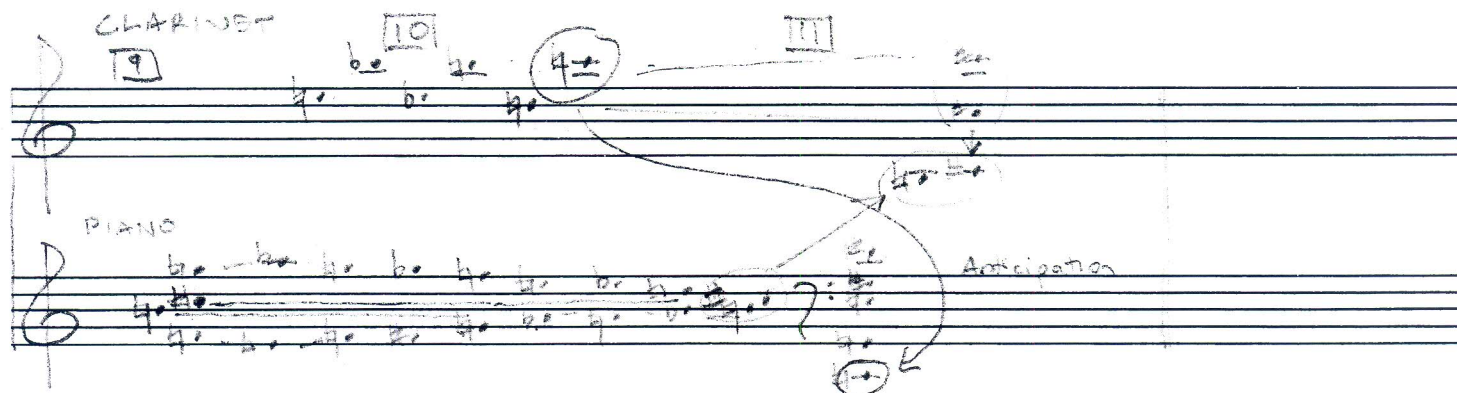
The structural consequences of this opening reactivity and complementarity between the clarinet and piano parts permeate the entire piece. The suggestion of tonal centricity around C returns in m. 6 in the left hand of the piano⁵, and in m. 9 as a result of a symmetrically expanding pattern in the clarinet, and a symmetrically compression pattern in the piano. The pitch collection in the clarinet from m. 8-9, [6789T023], shown in Example 9a, is responded to by its complement [E15] in the piano part, m. 9, beat 1 (example 9 b).



Example 9: Clarinet nonachord and its trichord piano complement in m. 9.

⁵ Breedyk. Page 78.

The piano complement from example 9 [E15], is a subset of the symmetrical tetrachord [57E1] that occurs in the piano. (Example 9b). From m. 9-10, the inner dyad of this chord [E1] remains constant, while the outer voices collapse chromatically around a 0 axis, suggesting again the centrality of C. This inward collapse around axis 0 is responded to in the clarinet by an outward wedge expansion around an axis of 7 from the end of m. 9 through the beginning of 11. The two symmetrical 'mirror image' formations are shown in abstract linear format in Example 10.



Example 10: Linear diagram of symmetrical motion in clarinet and piano, mm. 9-11.

Notice that the piano part in Example 10 converges on its inner dyad of [E1]. As was previously noted, this dyad represented the first notes of the first two clarinet entrances in measures 2 and 3. It now functions to create an axis around C (pitch class 0). The clarinet part, in Example 10, expanding around axis 7, arrives at pitch class C in m. 10 in its top 'voice.' The C completes the axis that the piano has compressed around, as well as anticipates the low note of

the return of [03478] in the piano part, measure 11. 5 octaves apart, the severe range of this anticipation of C sets up a dichotomy that will become intrinsic to the relationship of the clarinet and piano throughout mm. 13-17.

In measure 11, the clarinet picks up on the [E1] dyad in imitation of the piano part. The piano then forcefully reclaims this [E1] dyad at the upbeat to bar 13 and develops into pitch class set [TE126] at the beginning of m. 13. [TE126] remains symmetrical around axis 0. This motive is systematically extended downward through the piano register in mm. 13 to 17, coinciding with an extreme increase in texture and dynamics in both instruments. The wedge idea from the clarinet's previous passage (mm. 9-10) is now reinterpreted as piano against clarinet, and consequently the steeply descending piano line is responded to in the clarinet with a steeply ascending line. Example 11 illustrates the 'repulsion' of the two parts as the piano descends into its lowest register, and the clarinet into its highest.

CLARINET [13] [14] [15] [16] [17] [18]

4 5 7 9

(8vb) Piano

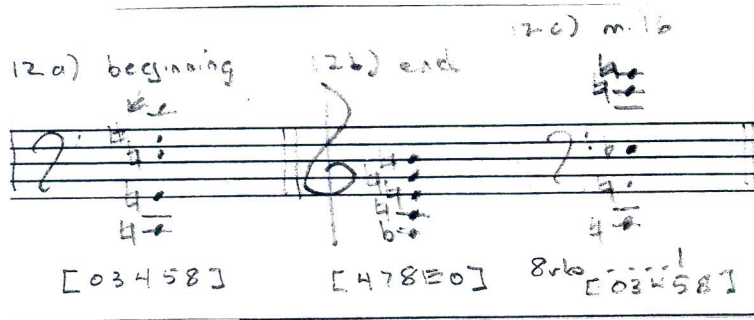
4 5 7 9

completes [4 5 7 9]
complement [1 2 3 6 8]

Example 11: Linear analysis of piano and clarinet contrary motion, mm. 13-18.

resolving to the lowest A on the piano at m. 17. The primary justification for this analysis relates back to the theme of complimentary, and the idea of ‘filling in’ space. If we take all of the pitches from the piano part in Example 11, the resultant octachord is pitch class set [TE123468]. The clarinet, using pitches from [4567], systemically emphasizes each pitch class in turn, starting at 4 in measure 13 and ending at pitch class 7 in measure 16. The literal complement of the piano octachord [TE123468] is pitch class set [4579], which contains the written pitches E, F, G, and A. It is my belief that the rising clarinet line serves to compliment the descending piano line. The emphasized F# in the clarinet line is merely a result of the general tendency to form chromatic cells. The final and necessary tone of this compliment, pitch class 9, or A natural, is fulfilled as a devastating, apocalyptic blow on the lowest note on the keyboard. The B that accompanies it may be interpreted as a repetition of the first note of each piano figuration (upbeats to m. 13, 14, 15, 16, and 17.)

The pianist is instructed to silently depress the keys of CEGB, a C major 7th that yet again questions the tonal centrality of the piece. Berg allows the overtones from the low *fff* crashes to vibrate the tones of this haunting sonority, which sounds by itself at the beginning of m. 18, and then against one last clarinet recitative in m. 18. The C major 7th is re-iterated in the middle of measure 19, and resonates with the very last Clarinet note of A flat into a bewildering silence. These last five pitches form the pitch class set [478E0], T₄ of the opening piano chord (See example 1b) . This time, it is arranged with the clarinet’s A flat on the bottom, challenging the centrality of C right once and for all. Example 12 illustrates the ordered arrangements of these sets.



Example 12: ordered arrangements of [03478] and [478E0].

Example 12c) represents an abstraction from m. 16, the penultimate bar to the climax at 17. It shows the lowest three pitches on the piano (C, A flat, E flat), and the framing notes of the chromatic clarinet line (E, G). This devastating rearrangement of the opening sonority at the moment of greatest tension re-emphasizes its importance as a generator of musical content throughout the movement. At the percussive release of bar 17, the sonority unleashes its inherent tension and relinquishes its opening challenge, awaiting the final response from the clarinet. “The harmonic energy of these pieces, pent up over time, has burst its damns, and with it the form: a soulful voice mourns it in sadness.”⁶

An opening piano sonority, brilliantly constructed, poses a question to which a clarinet reacts. A continuation of this opening dialogue unfolds a masterful narrative through the use of symmetry, complementarity, and chromatic filling in of space. This narrative culminates in a massive climax in contrary motion between the two instruments, and then returns to its opening question. In this sense, Adorno is right. The movement is a rondo in function if not in form; a structure that returns to itself through the organic unity of musical materials.

⁶ Adorno. Page 71.