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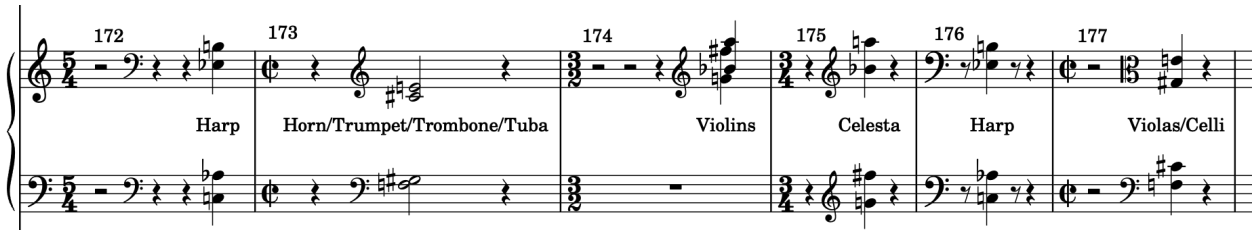
Analysis Paper #3: Tying Up Loose Ends in Webern's Op. 30

Anton Webern's Opus 30 is titled *Variationen für Orchester* and, as expected with such a title, goes through numerous developments. Webern uses the many different tools at his disposal to form these variations, including permutations of the row on which the piece is based, orchestration choices, and rhythmic patterns. How a composer chooses to conclude a set of variations often gives insight into the rest of the piece, and I want to focus on the concluding eight bars of the piece. In them, I find that Webern uses permutation intersections, related tetrachords, and intervallic relationships to bring the piece to a close.

Webern intersects several of the permutations in the concluding measures of Opus 30. He typically does this within tetrachords. Webern makes these chords very distinct by using one instrument, or group of instruments, to produce each pitch class set. See Example 1:

Example 1: Instrumentation of tetrachords in measures 172-177 of Opus 30 by Anton Webern



As shown in Example 1, Webern gives two tetrachords to the harp, one tetrachord to the celesta, one tetrachord to the brass section, and two tetrachords to the string section. The tetrachords in the harp part are particularly noteworthy because they are comprised of the exact same pitch class set and even occupy the same pitch space. The first harp tetrachord is made up of order numbers 5, 6, 7, 8 of R_6; the second harp tetrachord is order numbers 5, 6, 7, 8 of P_6

(refer to Appendix 1). By maintaining the same instrumentation for this tetrachord, Webern encourages the listener to hear the connection between the two permutations.

Webern does something similar, but perhaps not quite as obvious, in measures 173 and 177. See Example 2:

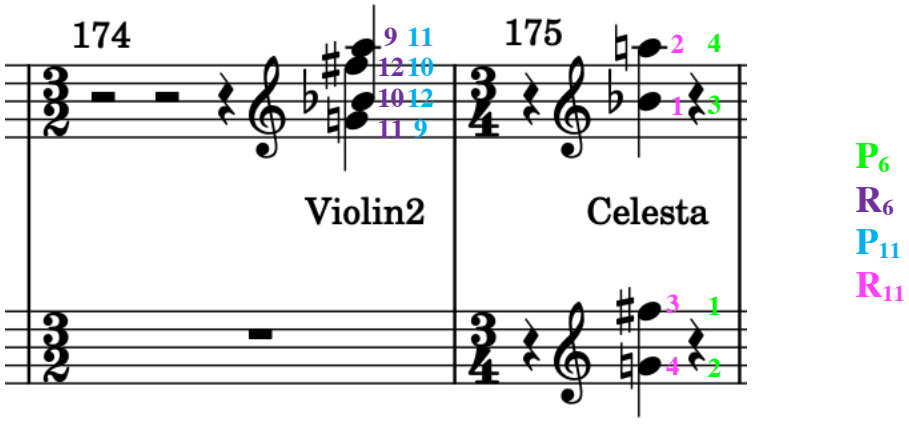
Example 2: Normal form of tetrachords in measures 173 and 177 of Opus 30 by Anton Webern

Permutation	Normal Form
5, 6, 7, 8 of P_{11}	[1458]
5, 6, 7, 8 of R_{11}	[1458]

Example 2 shows, in normal form, the pitch class set making up P_{11} order numbers 5, 6, 7, 8 and the pitch class set making up R_{11} order numbers 5, 6, 7, 8 are the same. Webern obscures the connection between the two tetrachords, however, by the instrumentation (refer to Example 1). While the P_{11} tetrachord in measure 173 is played by the brass section, the R_{11} tetrachord in measure 177 is played by the string section (specifically the violas and celli). Thus, the repetition of these pitch classes is much more subtle than those of the harp.

There are two other notable tetrachords in this passage, found in measures 174 and 175. See Example 3:

Example 3: Four permutations in measures 174 and 175 of Opus 30 by Anton Webern

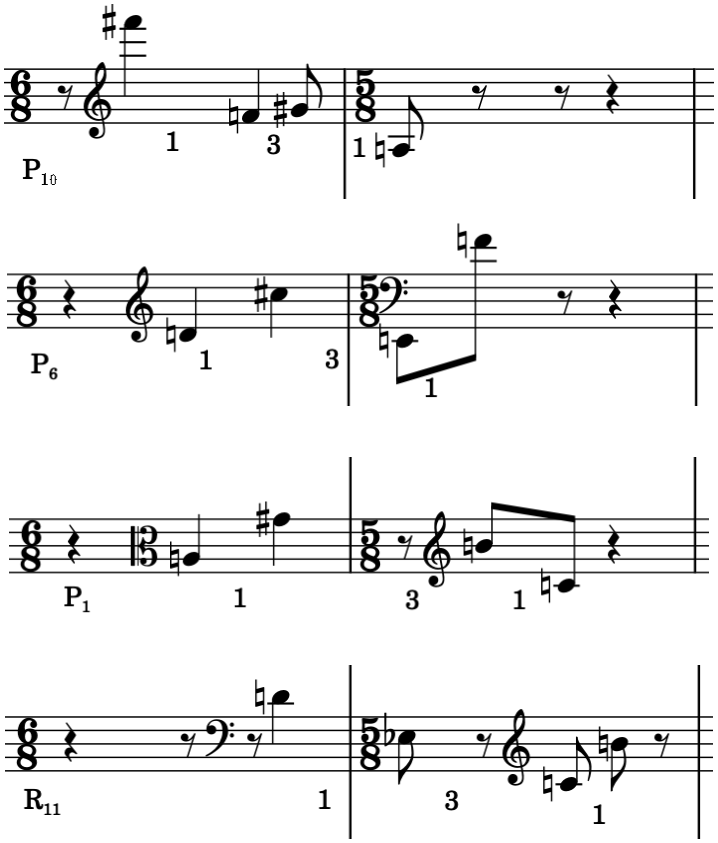


As shown in Example 3, the tetrachord played by the second violins in measure 174 is part of tone rows R_6 and P_{11}. Although the order numbers of each permutation apply to different pitch classes, grouped as a whole, P_{11} and R_6 order numbers 9, 10, 11, 12 share the same pitch space. Webern highlights this junction by silencing the rest of the orchestra, excepting the first violins (refer to Appendix 1). The sole use of violins in measure 174 produces a homogenous sound and brings attention to this bar.

Webern continues the sounding of these exact pitches in measure 175 by rearticulating the tetrachord (refer to Example 3). This time, however, Webern uses the celesta. This latter tetrachord is part of P_6 and R_{11} (order numbers 1, 2, 3, 4). Measures 174 and 175 therefore mark a meeting between two primes (P_6 and P_{11}) and their two retrogrades (R_6 and R_{11}). By intersecting these four permutations, and using this specific instrumentation of violins and celesta, Webern seemingly suspends motion in these two measures, before he uses P_6 and R_{11} to propel the piece forward to the end.

The last two bars of the work, measures 179 and 180, feature the conclusion of four different permutations: P_{10}, P_6, P_1, and R_{11}. Webern weaves them together into an intricate tapestry of sound. Webern's use of different rhythms, and the way this interlocks the permutations, is apparent with a quick glance at the score. But he also uses intervallic relationships to tie the permutations together. When order numbers 9, 10, 11, 12 of each permutation are grouped as tetrachords, and their unordered pitch class intervals analyzed, something special appears. See Example 4:

Example 4: Unordered pitch class intervals in measures 179 and 180 of Opus 30 by Anton Webern



Example 4 shows how the unordered pitch class intervals between the four tetrachords are the same: 1, 3, 1. By rhythmically overlapping the final order numbers of these four permutations, Webern appears to be giving a final nod to the nature of the row on which this piece is based. All the permutations in this piece begin and end with four pitch classes that are 1, 3, and then 1 semitones apart.

Webern further weaves the permutations together by his choice of pitch space. See Example 5:

Example 5: Contour segmentation of final tetrachords (measures 179-180) in Opus 30 by Anton Webern

Tone Row	Contour Segmentation
$\mathbf{P_{10}}$	<3120>
$\mathbf{P_{6}}$	<1302>
$\mathbf{P_{1}}$	<0231>
$\mathbf{R_{11}}$	<2013>

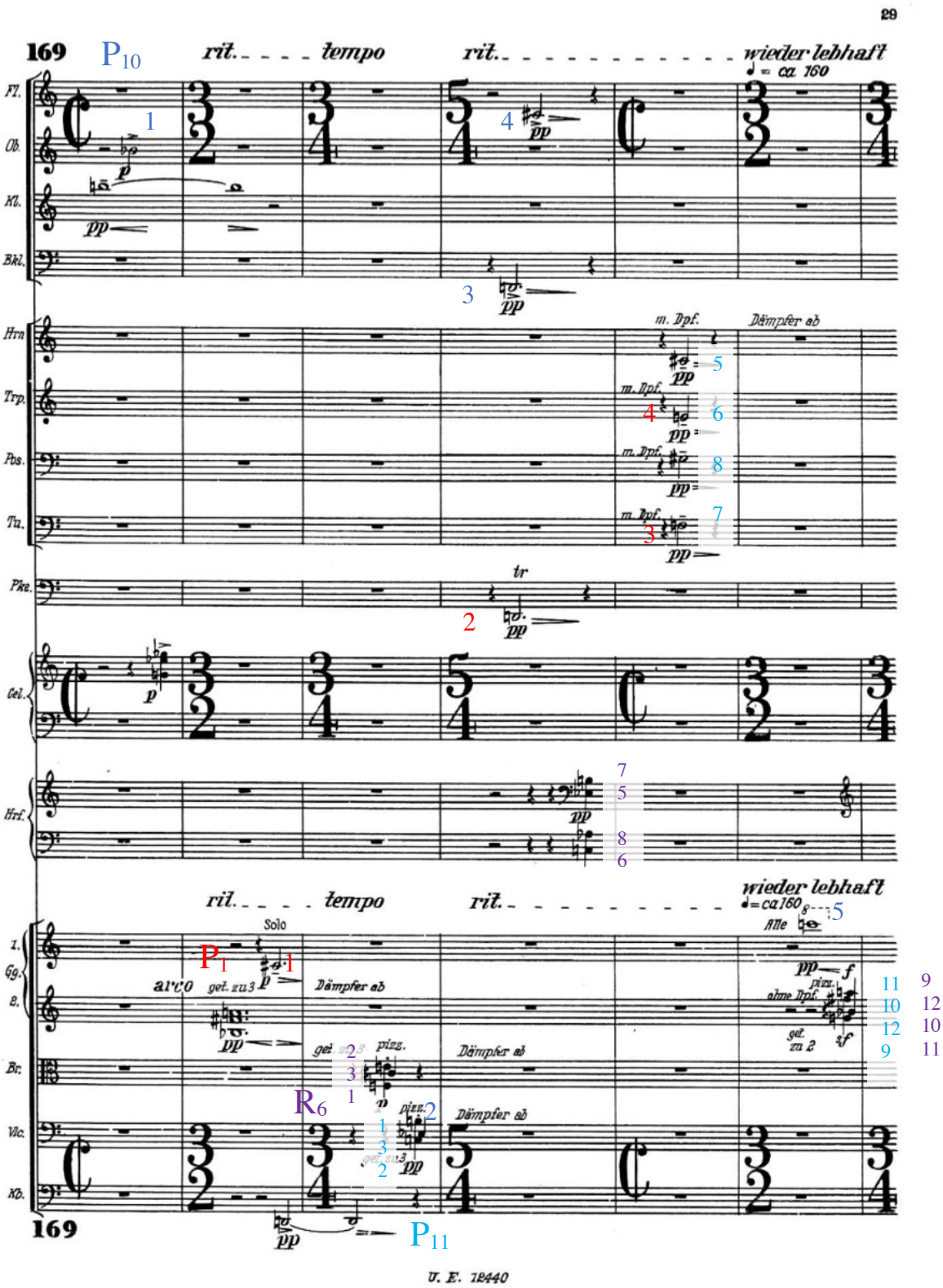
Example 5 features the final four tetrachords of the piece in contour segments. This reveals that, not only is Webern using pitch class intervals to interlock the tone rows, but he is using pitch space as well. There is an incredible range of pitch space in these final two measures. Not one of the four tetrachords has the same contour segmentation, and I believe this to be Webern's way of obscuring the intervallic relationships shown in Example 4.

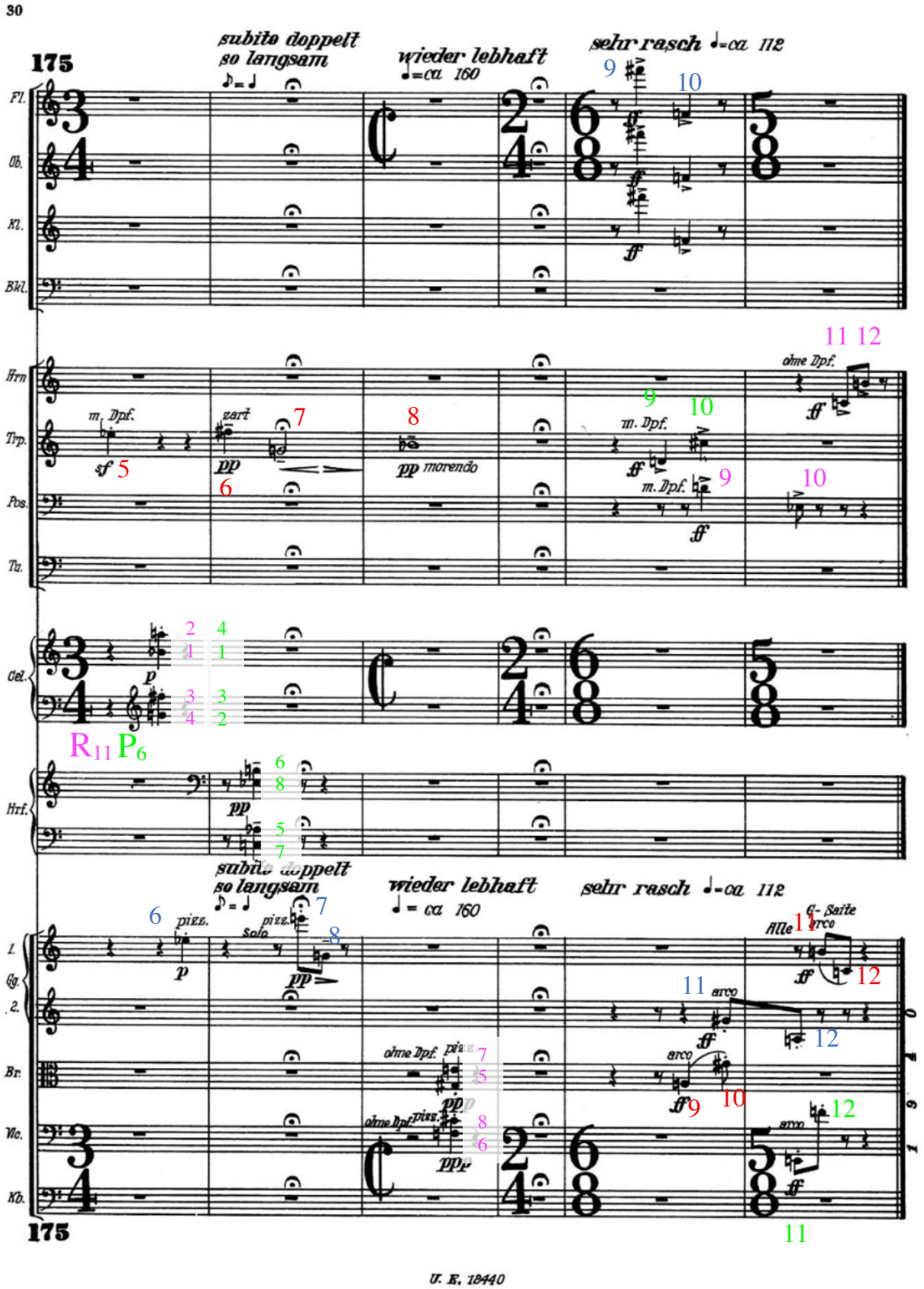
In the concluding eight bars of *Variationen für Orchester*, Opus 30, Anton Webern draws the piece to an end in a variety of different ways. He intersects several permutations within tetrachords, highlighting their shared pitch classes. Webern then aurally connects these tetrachords through his use of instrumentation, whether it is by using the same instrument to rearticulate a pitch class set or by using specific groups of instruments to highlight a commonality between pitch class sets. And finally, in the last two measures of the piece, Webern draws out intervallic relationships from the row on which the piece is based to speak to the entire work as a whole. He overlaps the permutations, writes for different instruments, and uses an expansive range of pitch space. This simultaneously highlights and obscures the intervallic commonalities between the permutations. The entire work features moments of clear intervallic

and pitch class relationships, as well as moments of complexity and obscurity. Here, in the final ten bars of Opus 30, Webern creates both, and thus brings the piece to a tidy close.

Appendix 1

Permutations Discussed in Measures 172-180 of Opus 30 by Anton Webern




30
175
subito doppelt so langsam
wieder lebhaft
♩=ca 160
sehr rasch ♩=ca 112
Fl.
Ob.
Kl.
Bkl.
Hrn
Trp.
Pos.
Tu.
m. Dpf.
zart
ohne Dpf.
Cel.
Hrf.
R11 P6
Gg. 1.
2.
Br.
Vc.
Kb.
pizz.
Solo
arco
G-Saite
Alle
U. E. 18440