

Straus Ch. 2 PITCH-CLASS SETS

“Pitch-class sets are the basic building blocks of much post-tonal music.
 A pitch-class set is an unordered collection of pitch-classes...a motive from which many
 of the identifying characteristics—register, rhythm, order—have been boiled away.”

Joseph Straus, *Introduction to Post-Tonal Theory*

Terms and Concepts		
<p>Pitch-Class Set pitch-class set, abbr. <i>pc set</i> <i>an unordered collection of pitch classes</i> pc set notation - staff notation - pc letter name notation - pc integer notation pitch-class clockface <i>a geometric analogy for a pc set</i> cardinality cardinality type¹ (trichord, tetrachord, pentachord, etc.)</p> <p>Normal Form <i>the most compact way to write a pc set</i> normal form algorithm (p. 36) - Rahn 1980 algorithm* - Forte 1973 algorithm normal form notation e.g.: [B, C, D] or [11, 0, 2]</p> <p>Transposition pitch transposition pc transposition (T_n) transposition number n geometric analogy for T_n T_n-equivalence algebraic notation for T_n - e.g.: $T_n(X) = Y$</p>	<p>Transformational Network Diagrams transformation - mapping under T_n one-to-one correspondence nodes represent objects arrows represent operations musical motion preservation other mappings: - inverse, complement, contour, order, etc.</p> <p>Inversion pitch inversion pc inversion (I) pc inversion followed by pc transposition (T_nI) compound operation geometric analogy for T_nI T_nI-equivalence algebraic notation for T_nI - e.g.: $T_nI(X) = Y$ index number (sum) If $T_nI(a) = b$, then $n = a + b$ interval succession (series) - mirror image Lewin's inversion function (I_y^x)</p>	<p>Set Class Set class, abbr. <i>sc</i> Set type - Cardinality-type - T_n-type - T_n/T_nI-type set class under T_n/T_nI - distinct members (usually 24) set class membership <i>List of Set Classes</i> (pp. 261-64)</p> <p>Prime Form <i>the 'most normal' of normal forms that is used to name the set class, begins with 0, and is most packed to the left</i> Prime form algorithm (p. 58) - Short-cut method² If $T_nI(X) = Y$, the retrograde of Y is usually Y's normal form, <i>but not always!</i></p> <p>Forte name Set class name e.g.: sc4-1 (0123)</p> <p>Segmentation and Analysis Significant musical ideas analytical hypothesis segmentation simultaneities</p>

NOTATION SUMMARY

	PC Set	Normal Form	Prime Form	Set Class	IC Vector
PC Letter Name	(B, A, C, Bb)	[A, Bb, B, C]	(0123)	4-1 (0123)	321000
PC Integer	(11, 9, 0, 10)	[9, 10, 11, 0]			

¹ Rahn 1980 defines the following thirteen set types based on cardinality: 0-null set, 1-monad, 2-dyad, 3-trichord, 4-tetrachord, 5-pentachord, 6-hexachord, 7-septachord, 8-octachord, 9-nonachord, 10-decachord, 11-undecachord, 12-aggregate.

² See Rahn 1980, p. 82.

QUOTABLE

“When we listen to or analyze music, we search for coherence.
In a great deal of post-tonal music, that coherence is assured through the use of pitch-class sets.”

“a varied musical surface is created by transforming basic structural units.”

“By moving from set to set within a single set class,
a composer can create a sense of coherent,
directed musical movement.”

“It is possible to hear pathways through the music as one of more sets are
transposed and inverted in purposeful, directed ways.”

ON SEGMENTATION AND ANALYSIS

“You have to enter the world of the piece—listening, playing, and singing—until you get a sense of
which musical ideas are fundamental and recurring.”

“post-tonal music is often like a rich and varied fabric,
comprised of many different strands. As we try to comprehend the music,
it is our task to tease out the strands for inspection,
and then to see how they combine to create the larger fabric.”

“Instead of trying to find a single source for all of the music,
try to forge meaningful networks of relationship,
teasing out particularly striking strands in the music fabric,
and following a few interesting musical paths.”

“In all of your musical segmentations, strive for a balance between
imaginative seeking and common sense...
stay within the boundaries of what can meaningfully be heard.”

Joseph Straus, *Introduction to Post-Tonal Theory*

MUSICAL SETS: A PARAMETRIC CONCEPTION OF A MUSICAL IDEA

Musical parameters include (not an exhaustive list):

p i t c h , d u r a t i o n , i n t e n s i t y , t i m b r e ,

articulation, contour, harmony, interval, interval class, melody, meter,
order, phrase, pitch class, register, rhythm, and so forth...

LEVELS OF ABSTRACTION

opi -> upi -> opci -> ic

Pitch -> PC -> PC set -> Cardinality-type -> T_n -type -> T_n/T_nI -type -> etc.
e.g., Bb4—A4—C5—B4 -> Bb—A—C—B -> (Bb, A, C, B) -> tetrachord -> (0123)