

Naming Tn and TnI set classes

1. Start with a pitch set
(for example, a harmony or part of a melody) **that exists in real music:**

ordered (melodic) pitch set

f	-7
b	-1
d#'	3
g#'	8

"Tristan"

2. Convert it to an unordered set of pitch classes (express them in the range of a single octave).

unordered pc set

3. Find any candidates for "normal form" by arranging the notes to place the smallest possible interval between first and last. At this point, you need to reject any arrangements that are dispersed through a range larger than any other arrangement.

4. Choose the candidate whose inner members have the lowest possible sum of intervals up from the lowest member.

This is the "normal form" of the set.

5	8	e	3
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3	5	8	e
e	3	5	8

int. (first-to-last) = 8
int. (first-to-last) = 9

normal form

0	2	5	8
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Tn Prime Form

inversion = t 0 4 7

0	2	6	9
0	4	7	t
0	3	6	8
0	3	5	8

V₄₂ V₇ V₆₅ V₄₃

0	2	5	8
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TnI Prime Form

GLOSSARY:

pitch set -- a collection of (specific) pitches, the importance of which might be the subject of an analysis.

pc set -- a collection of pitch classes that describes a number of possible pitch sets.

normal form -- an arrangement of a pc set that displays its intervals in the most compressed possible form.

Tn set class -- a classification containing all possible transpositions of a pc set; any set in the class will be a transposition of every other set in the class, and no transpositions of any set will be absent.

TnI set class -- a classification containing all possible transpositions of both a pc set and its inversion; any set in this class will be related to every other by transposition and/or inversion; no such relations of any other member.

int. (first-to-last) = 8
int. (first-to-last) = 8

normal form

The Tn Prime form is the transposition of the normal form such that the leftmost number is 0

Tn Prime Form
Say: "The pitch set {-1 16 17 0 21} and the pc set {e 0 4 5 9} are members of Tn set class [02378]."

5. Transpose the result so that the leftmost member is 0. The result of this is both a the "Tn Prime Form" (a specific set), and the name of a "Tn Set Class" (the class of sets to which the original pitch set, and many others, belong).

6. Invert the set, and repeat steps 3 through 5 for the inversion.

inner member sum 1 + 5 + 6 = 12
inner member sum 1 + 3 + 7 = 11

inversion

two candidates for "Tn Prime form"
(Note that the "normal form" step can be mixed in with the determination of Tn Prime form, if you have no need to determine normal form.)

7. Choose between the set's Tn prime form (step 5) and the Tn prime form of its inversion (step 6) according to step 4 above.

The result is the TnI prime form.

TnI Prime Form
Say: {-1 16 17 0 21} and {e 0 4 5 9} are members of TnI set class [01378].