

Theory 4 Handout 2 – Tie Breakers

Occasionally, when determining prime form, you will have a tie for most compact form. For example, this set:



has three rotations which tie for most compact form:

5 6 9 e 2 (2 - 5 = 9)

9 e 2 5 6 (6 - 9 = 9)

2 5 6 9 e (e - 2 = 9)

What we need to do is to find the form which has the smallest intervals to one side or the other.

1. Write the interval between adjacent pitch classes.

5 6 9 e 2 (rotation of pitch classes)
1 3 2 3 (interval between adjacent pitch classes)

9 e 2 5 6
2 3 3 1

2 5 6 9 e
3 1 3 2

2. Look for the smallest intervals to the left or right:

The top one has ic (interval class) 1 on the left.

The middle one has ic1 on the right.

The last one has larger intervals to each side.

Thus, the correct rotation will be either the top or the middle.

3. Continue the comparison, working to the other end of the set.

In this case, we compare [1 3 2 3] (top row) with [1 3 3 2] (bottom row, reversed).

The top row has the smaller intervals closer to one side, since ic2 is inside the set. The middle row has ic3s in the middle, with ic2 at the opposite end, so it is not as packed to one side with smallest intervals.

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4. If the smallest intervals are most packed to the left, prime form will be derived from this rotation. If the smallest intervals are most packed to the right, prime form will be derived from the inversion. Because this one [5 6 9 e 2] is most packed to the left with smallest intervals, we need only transpose to find prime form:

$$\begin{array}{r} 5\ 6\ 9\ e\ 2 \\ -\ 5\ 5\ 5\ 5\ 5 \\ \hline 0\ 1\ 4\ 6\ 9 \end{array}$$

A look at the chart shows that this is (5-32).