Variations – Supplemental Practice Exercises (Part I)

Here are a few examples for you to try. We’ll go over these in class, as needed. Solutions are given on pages 2-4 of this handout.

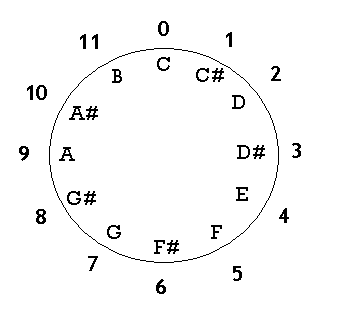
For each, I’ll just give you a “melody” as an ordered list of notes. Your job is to apply the given variation to each one, to find the new variation. You can write just write them as a list of notes, or (if you prefer) on a music staff. You can find some sheet music on the “notes” section of the class web page (click the “free sheet music” link).

Reminder: The notation “,” without a subscript, always refers to inversion centered at C – this is the inversion that is defined in the text.

1. G, F#, A, G, G, C – find: , , and
2. D, C, B, A, A, G, B – find , , and
3. D, D, C#, A, B, C#, D – find and
4. E, G, D, G, C, D, E, F, D, G – find and

1. G, F#, A, G, G, C – find: , , and

Recall that you find by raising each note by four semitones.

**B, A#, C#, B, B, E**

To find this variation, apply the inversion to , which you already found. Recall that you find the inversion by “reflecting” each note across a “C” – or, equivalently, by “reflecting” each note horizontally across the “musical clock” diagram.

B, A#, C#, B, B, E

**: C#, D, B, C#, C#, G#**

This is the inversion followed by . It’s tempting to just assume that the answer here will be same as the answer for , but that assumption would be incorrect! To see for yourself, first find the inversion of the original melody:

Melody: G, F#, A, G, G, C

Inversion: F, F#, D#, F, F, C

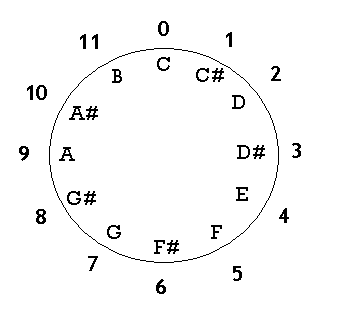
…then, apply to the result…

F, F#, D#, F, F, C

**A, A#, G, A, A, E**

Comments:

* Note that the results of and are NOT the same! This shows that inversions and transpositions are not “interchangeable” (or “commutative,” to use the mathematical term) – the order in which they’re applied does matter!
* However, note that there is some similarity between the two answers…  
  : A, A#, G, A, A, E  
  : C#, D, B, C#, C#, G#  
    
  Note the “jumps” between consecutive notes: first up one semitone (from A to A#, or from C# to D), then down two semitones (from A# to G, or from D to B), and so on. This similarity is consistent with how transpositions behave; in fact, these two answers are transpositions of each other. Specifically, if you were to transpose the first variation () up by four semitones, you would end up with the second variation (). .

2. D, C, B, A, A, G, B – find transposition,, and

: G#, F#, F, D#, D#, C#, F

: E, F#, G, A, A, B, G

To find , we must start with the inversion of the original melody, and then transpose that result up by 6 semitones:

: A#, C, C#, D#, D#, F, C#

: E, F#, G, A, A, B, G

Comment: We noted earlier (see the comments after #1 on the previous page) that isn’t usually the same as . However, an exception to this rule is when - that is, and DO give us the same variation; this always works! (Why is the exception to the rule?)

Note: Exercise #2 originally asked about rather than the variations shown here. (This was a typo caught by a student – thanks Justin!) Here are the answers for those variations…

: A, G, F#, E, E, D, F#

: D#, F, F#, G#, G#, A#, F#

: F, G, G#, A#, A#, C, G#

3. D, D, C#, A, B, C#, D

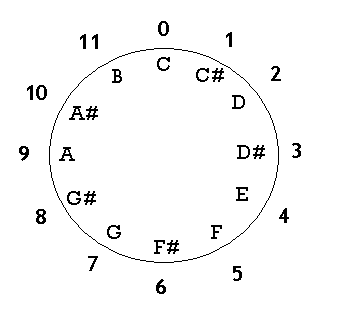
: A, A, G#, E, F#, G#, A

Comment: as noted in class, this transposition is the same as (since -5 + 12 = 7; that is, -5 and 12 are “equivalent” under the mod 12 arithmetic rules. So, we’ll usually call this variation rather than (or , or any other equivalent transposition) from now on.

A#, A#, B, D#, C#, B, A#

A#, B, C#, D#, B, A#, A#

Comment: denotes the “retrograde,” which simply reverses the order of the notes in a melody.

4. E, G, D, G, C, D, E, F, D, G – find and

Answers: and both leave us with the original melody; that is, I is its own opposite, and R is its own opposite:

: G#, F, A#, F, C, A#, G#, G, A#, F

E, G, D, G, C, D, E, F, D, G

G, D, F, E, D, C, G, D, G, E

: E, G, D, G, C, D, E, F, D, G

C, D#, A#, D# G#, A#, C, C#, A#, D#