J. S. Bach created canons using the first eight notes of the bass line for his Goldberg variations called the “Goldberg ground.” In the key of C, the theme is

cBAGEFGC

(I’m using a lowercase “c” to indicate a high C, the top note of the scale.) Let’s see how this theme can be played as a canon with itself. Dots indicate the number of notes where the second voice delays entering the round. Circle the dissonances between voices 1 and 2. Remember that the only dissonances in the C major scale are major or minor seconds and the tritone. These are \{ C, D \}, \{ D, E \}, \{ E, F \}, \{ F, G \}, \{ G, A \}, \{ A, B \}, \{ B, C \} and \{ B, F \}.

Bach also used the retrograde of the theme, meaning the theme played backwards:

cGFGABEc

This can be played against the theme with each player starting at the same time:
Another transformation of the theme is its inversion, which plays the theme “upside-down.”

Can this be played against the original theme? Can it be played as a round against itself?
Against the original theme?

What is the retrograde inversion of the theme?

**Sample Project.** Create as many canons as you can with Bach’s theme, and its retrograde, inversion, and retrograde inversion. Write a short essay on the history of canons, J.S. Bach, and the Goldberg canons. In your essay, also describe the steps you followed to create your canons. Play them for the class using abcdrums or teach the class to sing a couple of them.