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# Problem 1

Discuss how you determined the reference frequency and all scale / chord frequencies for this project.

For equal intonation, each note had the same frequency in any key, and I made this equal to the piano key frequencies, as shown in the Wiki page. I made A=440Hz.

For just intonation, I made the frequency of each note the same as in equal intonation, but only for its corresponding key. From there, every other note was calculated using the chart of ratios given in the notes. I typed in all the ratios to Excel, and then calculated the remaining frequencies as a ratio to the root frequency.

# Problem 4

Both the major and minor chords in Just temperament look very periodic. Especially the major chord, the envelope and the harmonics in between follow a very regular pattern. ../../../../../Desktop/majorJust.pd

../../../../../Desktop/minorJust.pd../../../../../Desktop/majorEqual.pd../../../../../Desktop/minorEqual.pd

Additionally, for both equal and just temperament, the major chord as a more well defined envelope, with a larger difference in amplitude between the max and min of the envelope. The minor chords have less defined envelopes. I suspect this is due to less regular destructive/constructive interference of the fundamental and the other notes.

# Problem 5

1. Can you hear the difference between the just tempered Major scale and the equal tempered Major scale?

No, they sound basically the same. Because the root frequency is the same, and the spacing is almost the same.

1. Which one sounds better? - Why (explain)

The just tempered scale sounds a little, flatter (?) than the equal tempered scale. But maybe that’s just my computer speakers.

1. Can you hear the difference between the just tempered Minor scale and the equal tempered Minor scale?

There is a small difference in the 4th note, the equal tempered one sounds a little flatter than the just tempered one.

1. Which one sounds better? - Why (explain)

I think the just tempered one sounds a little better because of the not flattened 4th note.

1. Can you hear the difference between the just tempered Major chord and the equal tempered Major chord?

The equal tempered chord is slightly higher pitched than the just tempered chord.

1. Which one sounds better? - Why (explain)

I think the equal tempered chord sounds better because the higher pitch makes it more interesting.

1. Can you hear the difference between the just tempered Minor chord and the equal tempered Minor chord?

The equal tempered minor chord has a slightly higher pitched tone to it.

1. Which one sounds better? - Why (explain)

The higher pitched tone of the equal tempered minor chord makes it sound slightly more intriguing.

# Other Comments