Project Proposal

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Research Objectives

In this project, I hope to explore how sound, and ultimately music, is related to numerical information (such as frequency) using R. This project will conceptualize a formal definition of music and seek to simulate what would be considered music. If possible, I would also like to create an R package related to this simulation. I hope to answer questions such as:

- Are there properties and patterns in music that can be used to generate it?
- How can music be expressed in terms of a numerical definition?
- How can this numerical definition of music be simulated?

Outline of Approach

In order to accomplish the goals laid out in my research objectives, I will need to conduct more research to provide a definition for music and also to determine how music relates to numerical data. I will need to gain a better understanding of what is considered music. I will also need to learn more about the capability of R in terms of relating sound to data within the program, which will include exploring existing R packages related to this issue. Sources listed in the "Resources" section below provide possible approaches to this topic, such as the article titled "Is birdsong music?" in which pattern in the frequency of bird song was compared to how music is defined in terms of frequency as well as the frequency that would occur at random.

Resources

Sources for related R packages:

- https://cran.r-project.org/web/packages/tuneR/index.html (tuneR)
- https://cran.r-project.org/web/packages/seewave/vignettes/seewave_IO.pdf (seewave, tuneR, and audio)

Related articles:

- Araya-Salas, M. (2012), Is birdsong music?. Significance, 9: 4-7. doi:10.1111/j.1740-9713.2012.00613.x
- Mocnik, F.B (2018), Tradition as a Spatiotemporal Process - The Case of Swedish Folk Music. Proceedings of the 21st AGILE Conference on Geographic Information Science.