

Give Your Data a Listen

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Many methods exist for visualizing data in *R*. This paper seeks to devise a method for going beyond data visualization in *R* by translating existing methods into sounds, scales, and chords that convey important characteristics of data and datasets aurally. We do this by utilizing the existing arsenal of data visualization tools in *R*, converting them into a semi-standardized form, and then compiling and playing them using the popular audio programming toolkit *Max/MSP*. We provide what we refer to as “audiolized” versions of visualization and analysis methods including but not necessarily limited to hex binning (**hexbin**), principal component analysis (**prcomp**), clustering (**biclust**), and factorization (**Hmisc**). There has been some work on this topic, most notably on “sonification” (Borasky, Edward [1]), but we are not aware of any such system for *R*. While the present project is targeted at users who are familiar with *R*, by using *RExcel*, our data audiolization can be made accessible to the large base of *Excel* users. Our current goals are (1) to provide an additional, secondary, method for observing data prior to further analysis and model-building; (2) to display results of data analysis aurally; (3) to engage visually impaired users with data and analyses in an innovative manner; and (4) make compelling, data-driven musical compositions.

References

- [1] Borasky, Edward (2012). Listening to Data: Sonification Using Open Source Tools, <http://opensourcebridge.org/sessions/376>.