

Comparison of Adele and Bruno Mars*

Daniel Xu

Dennis Netchitailo

Maria Mangru

October 10, 2024

This document analyzes the difference in Adele and Bruno Mars' albums over time.

Table of contents

1	Introduction	1
2	Introduction	2
3	Overview of terms	2
4	Graphing comparisons between Lady Gaga and Bruno Mars	2
	Appendix	4
A	Instructions on How to Obtaining the Data	4
	References	5

1 Introduction

This study utilizes R packages (R Core Team 2020) to clean and analyze Spotify playlist data, employing libraries such as **spotifyr** (Coleman 2021), **dplyr** (Wickham, François, Henry, Müller, and Vaughan 2023), **ggplot2** (Wickham 2016), and **tidyverse** (Wickham, François, Henry, and Müller 2023). The data was retrieved from Spotify's API (Spotify 2024)

*Code and data are available at: [Comparison of Adele and Bruno Mars](#).

2 Introduction

This study uses R packages (R Core Team 2020) to clean and analyze the dataset, including libraries from haven (Wickham, Miller, and Smith 2023), dplyr (Wickham, François, Henry, Müller, and Vaughan 2023), readr (Wickham, Hester, and Bryan 2024), kableExtra (Xie 2021), and ggplot2 (Wickham 2016). The data we used is from IPUMS (**citedata?**).

3 Overview of terms

The two famous artists chosen for comparison are Adele and Bruno Mars.

There are two units of analysis: energy & valence. Energy measures the intensity and activity of music. It ranges from 0 (calm, soft, or relaxed) to 1 (energetic, loud or dynamic). Valence measures the positivity of a song, ranging from 0 (negative, sad, or angry) to 1 (positive, happy, or cheerful).

4 Graphing comparisons between Lady Gaga and Bruno Mars

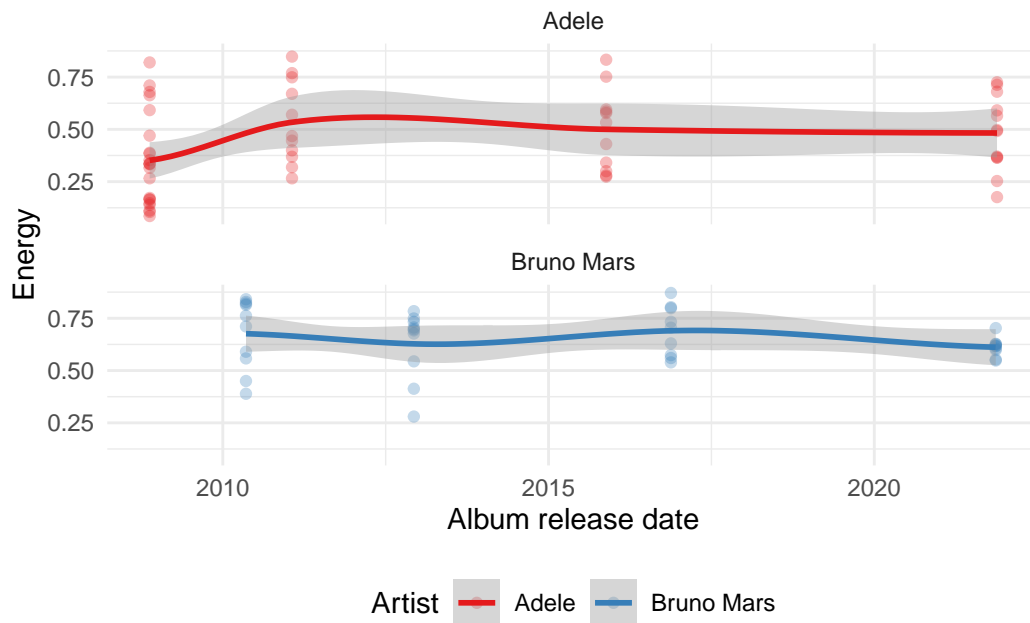


Figure 1: Bruno Mars lady gaga energy comparison graph

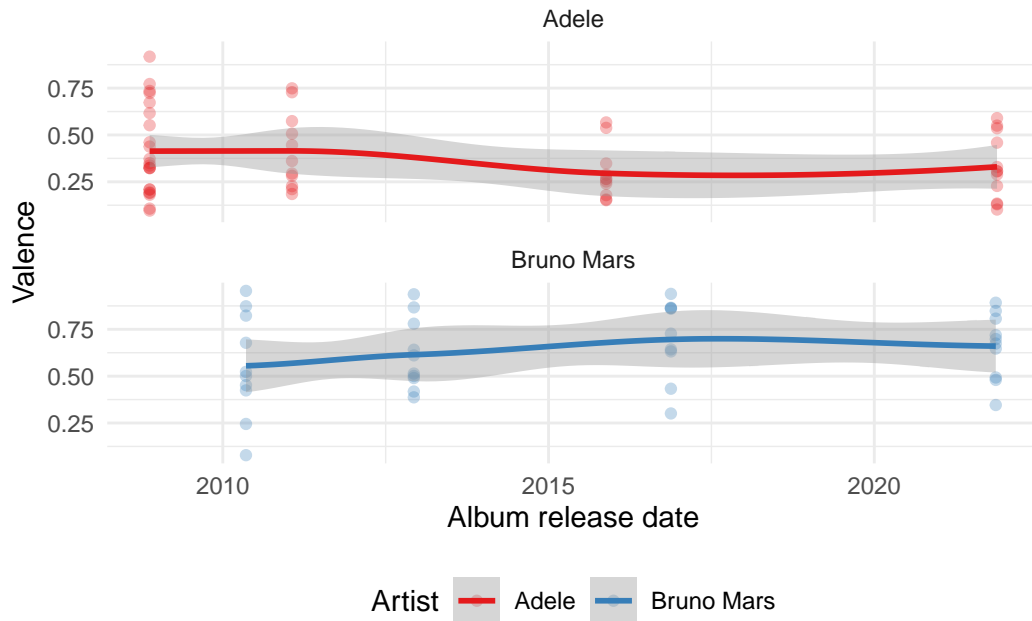


Figure 2: Bruno Mars lady gaga valence comparison graph

Bruno Mars has an energy level almost double that of Adele — 0.65 compared to 0.35. Over time, Bruno Mars has maintained a fairly constant level of energy, although the mid-2010s had a dip, then returned to its previous level, before dipping again by the 2020s.

In comparison, Adele started quite low, then nearly doubled her energy level, and finally finished by maintaining a stable 0.5 level.

The graph helps compare the change over nearly the same period of time, showing that both artists had variations in the energy levels of their songs. However, for both artists, the change has been relatively moderate.

For valence, both artist’s levels changed, but overall, not significantly. Adele’s valence level has trended downward. Bruno Mars’ valence level has trended upwards. In both cases, the change is gradual, and would likely not be noticeable to the casual listener. For fans, the change in energy & valence is likely great enough to be noticeable, although the variation over time has not been extreme.

An interesting observation is that the variation within each album has generally been greater for Adelle. Her albums have had variations of more than 50 levels. In comparison, Bruno Mars’s albums tend to be grouped together in terms of energy especially. With this, it can be understood that Bruno Mars’s albums tend to be more standardized in terms of musical elements, namely: energy. And the levels tend to be mid-to-high. Adele’ albums capture a wider range of energy levels: from low to high.

Appendix

A Instructions on How to Obtaining the Data

We used the Spotify Api along with Spotifyr to access the data. We created spotify developer accounts to create apps in order to get the API IDs. This won't be necessary for the reader since all the required data is in the repository.

References

- Coleman, Justin. 2021. *Spotifyr: Spotify API Interface for r*. <https://CRAN.R-project.org/package=spotifyr>.
- R Core Team. 2020. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. <https://www.R-project.org/>.
- Spotify. 2024. “Spotify Web API: Music Metadata and Analysis Data.” <https://developer.spotify.com/documentation/web-api>.
- Wickham, Hadley. 2016. *Ggplot2: Elegant Graphics for Data Analysis*. Springer-Verlag New York. <https://ggplot2.tidyverse.org>.
- Wickham, Hadley, Romain François, Lionel Henry, and Kirill Müller. 2023. *Tidyverse: Easily Install and Load the “Tidyverse”*. <https://CRAN.R-project.org/package=tidyverse>.
- Wickham, Hadley, Romain François, Lionel Henry, Kirill Müller, and Davis Vaughan. 2023. *Dplyr: A Grammar of Data Manipulation*. <https://dplyr.tidyverse.org>.
- Wickham, Hadley, Jim Hester, and Jennifer Bryan. 2024. *Readr: Read Rectangular Text Data*. <https://readr.tidyverse.org>.
- Wickham, Hadley, Evan Miller, and Danny Smith. 2023. *Haven: Import and Export ‘SPSS’, ‘Stata’ and ‘SAS’ Files*. <https://CRAN.R-project.org/package=haven>.
- Xie, Yihui. 2021. *Knitr: A General-Purpose Package for Dynamic Report Generation in r*. <https://yihui.org/knitr/>.