Analysis of Hitsujibungaku's Spotify Data

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Use the Spotify API to analyze data about three artists A Boogie Wit da Hoodie, Radiohead and Pay money To my Pain.

1 Introduction

This paper download data of three artists "A Boogie Wit da Hoodie", "Radiohead" and "Pay money To my Pain" from Spotify API, and visualize the metadata obtained. First, we compare the length of released songs between the three artists in Section 2.1. Second, we types of keys in "A Boogie Wit da Hoodie", and visualize the Major and Minor keys in their songs in Section 2.2.

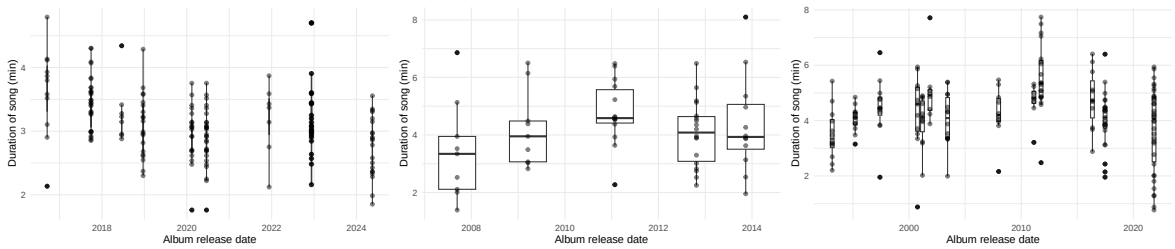
This paper is written with the help of R (R Core Team 2023), and the following packages: spotifyr (Thompson et al. 2022), styler (Müller and Walthert 2024), tidyverse (Wickham et al. 2019), tinytex (Xie 2019), usethis (Wickham et al. 2024), lintr (Hester et al. 2024), here (Müller 2020), ggplot2 (Wickham 2016), janitor (Firke 2023) and knitr (Xie 2014). The data is downloaded from Spotify API (Spotify 2024).

2 Data

2.1 Release Date and Duration

These three boxplots in in Figure 1 display the relationship between album release dates and song durations (in minutes) for A Boogie Wit Da Hoodie, Pay Money to my Pain(PTP), and Radiohead. In Figure 1a, for A Boogie Wit Da Hoodie, the data reveals a trend where more recent albums feature shorter songs, possibly reflecting the influence of short-form video platforms like TikTok, which encourage brevity in content.

For Pay Money To My Pain (PTP) in Figure 1b, the 2014 album stands out as significant. This album was released shortly after the death of the band's vocalist, K, in the same year.



(a) boxplot for Boogie (b) Boxplot for PTP (c) Boxplot for radiohead

Figure 1: The album release date vs duration of song

The boxplot shows a wide range of song durations for this album, likely reflecting the use of many vocal recordings made by K before his passing. This range may also capture the emotional intensity and variation in the music as the band paid tribute to their late vocalist, making it a deeply personal and diverse work.

In contrast, in Figure 1c, Radiohead exhibits less of this trend, maintaining relatively consistent song durations over time. This might indicate a different creative approach, as Radiohead's music tends to focus more on experimentation and artistry, rather than following trends in popular media. Together, these boxplots suggest that while some artists adapt to new trends, others continue to focus on traditional album structures.

2.2 Keys in the songs of "A Boogie Wit da Hoodie"

In this section we discuss the keys "A Boogie Wit da Hoodie" uses the most, and find the most frequently used Major and Minor keys used by the artist.

Based on Figure 2, Boogie With Da Hoodie has released more minor key songs than major key songs.

Based on Figure 3, in major key, Boogie uses major keys around C# the most. However for minor keys this is the exact opposite, meaning he uses minor keys around C# the least. Instead he uses the F and G minor keys often.

Based on Figure 4, both the distribution of energy level per songs for major and minor keys appear to be approximatley normal and sysmetric. Moreover, both histograms show that Boggie's songs energy levels are usually around 0.6.

Bibliography

Firke, Sam. 2023. *Janitor: Simple Tools for Examining and Cleaning Dirty Data.* https://CRAN.R-project.org/package=janitor.

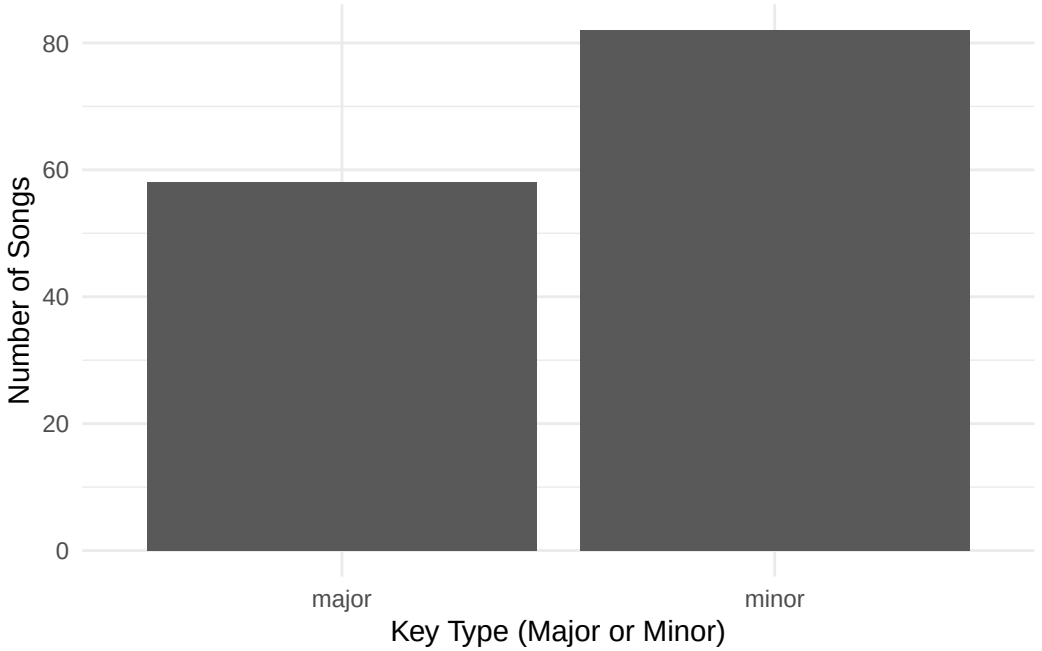
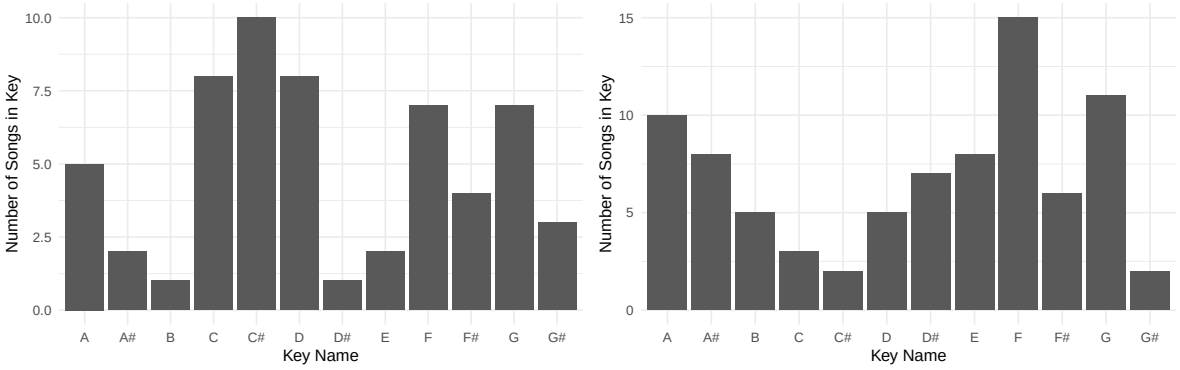


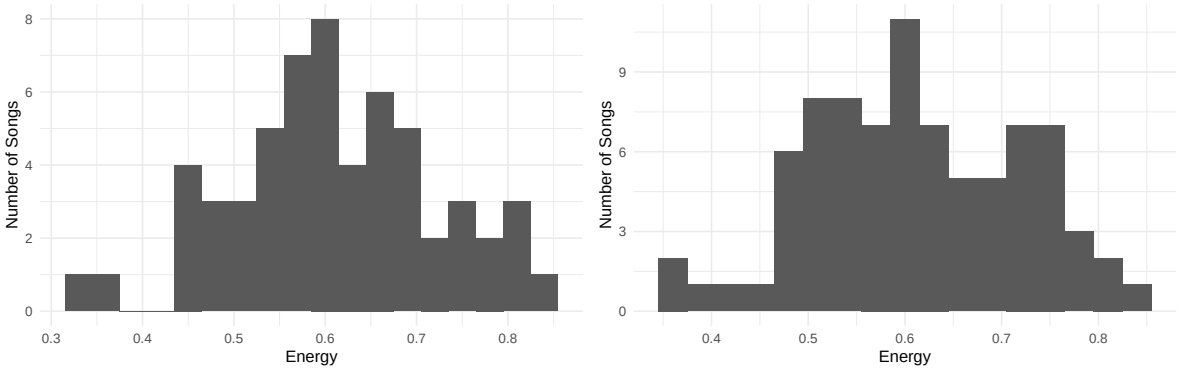
Figure 2: Number of Songs In Major Key



(a) Major

(b) Minor

Figure 3: Number of Songs Per Key



(a) Major (b) Minor

Figure 4: Energy Level Distribution For Boogie Songs

Hester, Jim, Florent Angly, Russ Hyde, Michael Chirico, Kun Ren, Alexander Rosenstock, and Indrajeet Patil. 2024. *Lintr: A 'Linter' for r Code*. https://CRAN.R-project.org/package=lintr.

Müller, Kirill. 2020. *Here: A Simpler Way to Find Your Files*. https://CRAN.R-project.org/package=here.

Müller, Kirill, and Lorenz Walthert. 2024. *Styler: Non-Invasive Pretty Printing of r Code*. https://CRAN.R-project.org/package=styler.

R Core Team. 2023. *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." https://developer.spotify.com/documentation/web-api.

Thompson, Charlie, Daniel Antal, Josiah Parry, Donal Phipps, and Tom Wolff. 2022. *Spotifyr: R Wrapper for the 'Spotify' Web API*. https://github.com/charlie86/spotifyr.

Wickham, Hadley. 2016. *Ggplot2: Elegant Graphics for Data Analysis*. Springer-Verlag New York. https://ggplot2.tidyverse.org.

Wickham, Hadley, Mara Averick, Jennifer Bryan, Winston Chang, Lucy D'Agostino McGowan, Romain François, Garrett Grolemund, et al. 2019. "Welcome to the tidyverse." *Journal of Open Source Software* 4 (43): 1686. https://doi.org/10.21105/joss.01686.

Wickham, Hadley, Jennifer Bryan, Malcolm Barrett, and Andy Teucher. 2024. *Usethis: Automate Package and Project Setup*. https://CRAN.R-project.org/package=usethis.

Xie, Yihui. 2014. "Knitr: A Comprehensive Tool for Reproducible Research in R." In *Implementing Reproducible Computational Research*, edited by Victoria Stodden, Friedrich Leisch, and Roger D. Peng. Chapman; Hall/CRC.

———. 2019. "TinyTeX: A Lightweight, Cross-Platform, and Easy-to-Maintain LaTeX Distribution Based on TeX Live." *TUGboat* 40 (1): 30–32. https://tug.org/TUGboat/Contents/contents40-1.html.