Tracking the Evolution of Sentiment: Analyzing Joji's Music Sentiment from 2018 to 2022*

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This analysis explores the evolution of emotional expression in Joji's music by analyzing the valence of tracks from his albums released between 2018 and 2022. Using data from Spotify, the analysis focused on changes in valence scores, which quantify the emotional positivity conveyed by his music. Preliminary findings suggest a trend toward more melancholic emotional expression over time. This study highlights how Joji's artistic direction has shifted, which may reflect broader trends in musical style and audience preferences.

Introduction

This study examines the emotional trajectory of Joji's music over a five-year period (i.e., 2018 to 2022), using emotional valence as a measure of the emotional content of his songs. Affective valence ranges from 0.00 (representing highly melancholic) to 1.00 (representing highly positive) and provides insight into the emotions conveyed by the music. By analyzing the emotional valence scores across Joji's album releases, we aim to discover patterns in his musical expression and explore how his artistic style has evolved. This analysis not only highlights changes in the emotional tone of his music, but also reflects broader trends in his artistic development. In this way, we seek to understand the nuances of emotional change and consistency in Joji's discography over a specific period of time.

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Data

To prepare a dataset for analyzing Joji's music, we downloaded data from Spotify using the Thompson et al. (2022) package, which facilitates access to a wealth of track details through the Spotify Web API. After obtaining the necessary authentication credentials, Joji's artist ID was used to compile data for all of his albums released from 2018 to 2022. This included extracting specific track information such as album title, release date, and valence scores, which measure the emotional positivity of the music. The consolidated dataset contains track IDs, valence scores, and other relevant details in a structure that facilitates in-depth analysis of trends and changes in Joji's musical expressions over the years.

For this analysis we used the following packages: R Core Team (2023), Wickham et al. (2019), Müller (2020), Wickham et al. (2024), Thompson et al. (2022), and Wickham (2016). The dataset is downloaded from:Spotify (n.d.). The code were used from Alexander (2023).
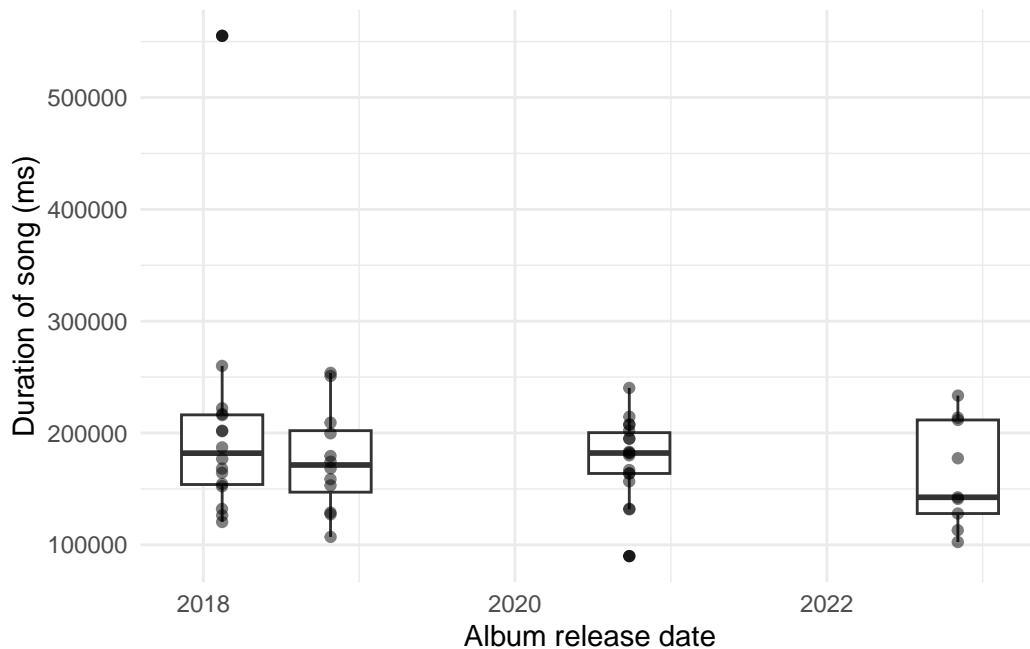
Result and Disscussion

Figure 1: Duration of the Song vs Album Release Date

The Figure 1 visually shows the distribution of Joji's song durations in milliseconds for albums released in 2018, 2020, and 2022. Song durations generally range from 100,000 to 500,000 milliseconds, with a large concentration between 100,000 and 300,000 milliseconds. Each year

has its own box plot, highlighting the median, interquartile range (IQR), and presence of outliers.

In 2018, song durations generally clustered around 200,000 milliseconds. This year's data is tightly grouped with a narrow IQR, indicating that most songs are close to the median duration. However, one extreme outlier is observed with a duration of over 500,000 milliseconds. In 2020, the median duration decreased slightly from 2018, with significantly less variation between song lengths and the absence of extreme outliers indicating more uniform song durations.

By 2022, the median song length was very close to that of 2018, but the variation between song lengths increased significantly. This year's wider IQR reflects a greater diversity in song lengths, including some significantly shorter songs labelled as outliers. This trend of increasing variation, combined with consistent median lengths over the years, suggests that while typical song lengths have remained stable, the range of song lengths that artists are exploring has expanded, especially in recent years. This may indicate that Joji are increasingly willing to experiment with shorter and longer musical forms.
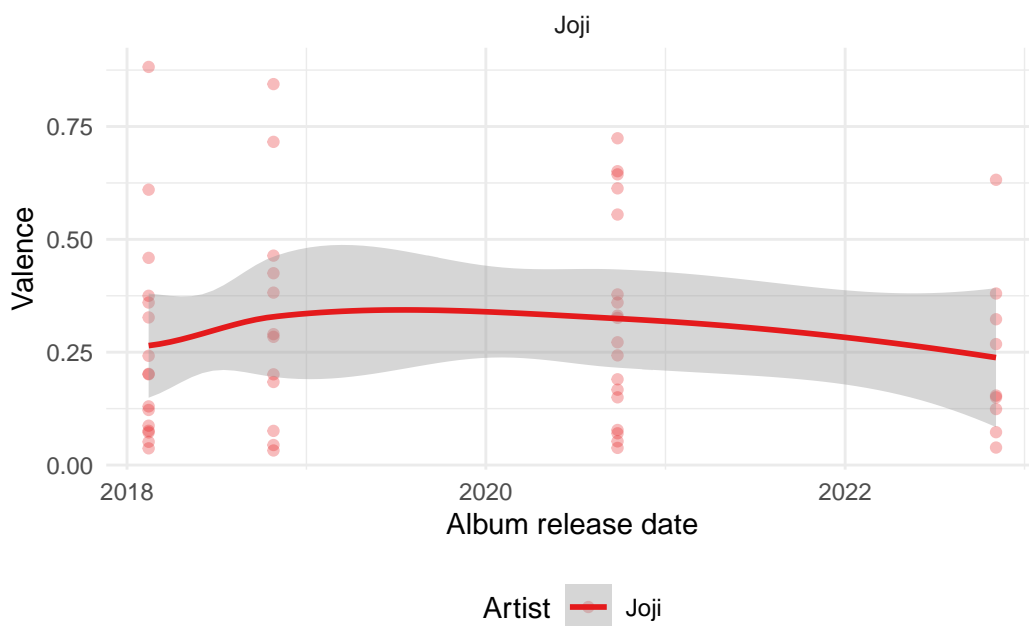

Figure 2: Valence Variations Across Album Release Dates

The Figure 2 illustrates the relationship between the positive emotions (i.e., sentiment values) in Joji's music and the release dates of his albums from 2018 to 2022. Valence scales from 0.00 to 1.00, with higher values indicating more positive emotions in the music. In 2018, Joji's tracks show a wide range of valence scores, mainly between 0.00 and 0.30. This suggests that his music during this period generally conveys a melancholic or somber tone. The confidence intervals for these values are relatively small, suggesting that the songs released during the year had a consistent emotional theme. By 2020, the average emotional value of Joji's music

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changes significantly, with most songs having emotional values between 0.25 and 0.50. This slight increase implies a moderate increase in positive emotional content in his songs. However, the wider range and larger confidence interval in 2020 compared to 2018 suggests that the emotional tone of his music has become more variable. In 2022, the trend in emotion scores decreases slightly, returning to a more somber tone on average. This is also a year with greater variation in emotional expression and wider confidence intervals. the music released in 2022 not only has lower mood scores, but also has greater fluctuations in the emotional tone of each song. The gradual decline in emotion scores from 2020 to 2022 is particularly intriguing, reflecting a shift in Joji's musical style toward

Appendix

Data were downloaded from Spotify, and method were used from Alexander (2023).

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