Analyzing Drake and Kendrick Lamar's Albums based on Song Duration and Valence*

Drake displays variability in emotional tone over time, while Kendrick Lamar maintains a consistent emotional profile.

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This report presents a comparative analysis of two prominent hip-hop artists, Drake and Kendrick Lamar, focusing on trends in song duration and emotional tone (valence) from 2010 to 2023. By examining two distinct metrics—song duration and valence—the report highlights key differences and similarities in their musical evolution. Drake's music displays greater variability in both song length and emotional tone over time, with a noticeable decline in positivity, as his average valence trends downward. Kendrick Lamar, by contrast, demonstrates more consistent song lengths and emotional stability, maintaining a relatively stable emotional profile across his albums. The findings suggest divergent approaches to artistic expression, with Drake leaning toward experimentation and emotional shifts, while Kendrick Lamar retains a more uniform approach to both song structure and emotional content.

1 Introduction

In contemporary hip-hop, two of the most influential and critically acclaimed artists are Drake and Kendrick Lamar. Both artists have not only achieved commercial success but have also garnered attention for their distinct musical styles, lyrical depth, and emotional expression. As their careers have progressed, their music has evolved in various ways, reflecting shifts in tone, content, and structure. This report seeks to explore two key dimensions of their musical output over the last decade: song duration and emotional tone (valence).

This analysis is based on data from albums released between 2010 and 2023, focusing on how these two artists have approached song structure and emotional expression differently over

*Code and data are available at: https://github.com/RohanAlexander/starter_folder.

time. By examining these metrics, this report aims to highlight the contrasts and similarities between their evolving artistic approaches, providing deeper insights into how each artist has shaped and responded to the shifting landscape of hip-hop.

2 Data

The raw data was sourced from the Spotify Data using `spotifyr` (Thompson et al. 2022) package. The artists were Kendrick Lamar ("Kendrick Lamar" 2024) and Drake ("Drake" 2024) from Spotify. The data, provided in CSV formats, was cleaned and analyzed using R (R Core Team 2024) programming language. Other R packages used include `tidyverse` (Wickham et al. 2019), `styler` (Müller and Walthert 2024), and `dplyr` (Wickham et al. 2023) for creating tables. The `ggplot2` (Wickham 2016) and `kableExtra` (Zhu 2024) were used for data visualization and table formatting.

The data consists of two artists, Drake and Kendrick Lamar, and their respective albums. The data includes the album release date, duration of the album, and the valence of the songs in the album. The data was cleaned and analyzed to compare the duration and valence of the songs in the albums of Drake and Kendrick Lamar.

Song duration refers to the length of individual tracks and can provide insight into the structural choices an artist makes, such as whether they favor more concise pieces or longer, narrative-driven compositions.

Valence, on the other hand, is a metric used to measure the emotional tone of a song, with higher values indicating more positive or upbeat emotions and lower values indicating darker, more negative emotions. Together, these metrics offer a window into the broader artistic and emotional trends that define Drake's and Kendrick Lamar's discographies. We are unware of how the valence was calculated, but we can assume that it was calculated using the audio features of the songs and was manually checked by the Spotify team. The advantages of using the valence metric is that it is a standardized measure that can be used to compare the emotional content of songs across different artists and genres, however, it is important to note that it is a simplification of the complex emotional content of music and may vary in its accuracy.

Table 1: Comparing Valence of Drake and Kendrick Lamar's Albums.

Artist	Album Release Date	Duration (minutes)	Valence
Drake	2023-11-17	4.184900	0.2000
Drake	2023-11-17	2.353533	0.3090
Drake	2023-11-17	4.760500	0.1040
Drake	2023-11-17	2.585900	0.0658
Drake	2023-11-17	2.735700	0.0667

2.1 Relationship between Kendrick Lamar and Drake's albums duration

Figure 1 shows a wide variability in song duration for Drake from around 2010 to 2020. The duration of his songs generally clusters between 3 to 6 minutes. There are several outliers with some songs lasting up to 10 minutes or more, especially after 2015. However, most of the songs maintain a moderate range. There is no clear trend of increasing or decreasing duration over time; instead, there's variability across albums.

Kendrick Lamar's songs tend to be more clustered in terms of length, with most of his songs ranging between 3 to 6 minutes as well. The variability is somewhat lower compared to Drake's, with fewer outliers. A few songs surpass 10 minutes, but they are much rarer and seem to occur after 2015.

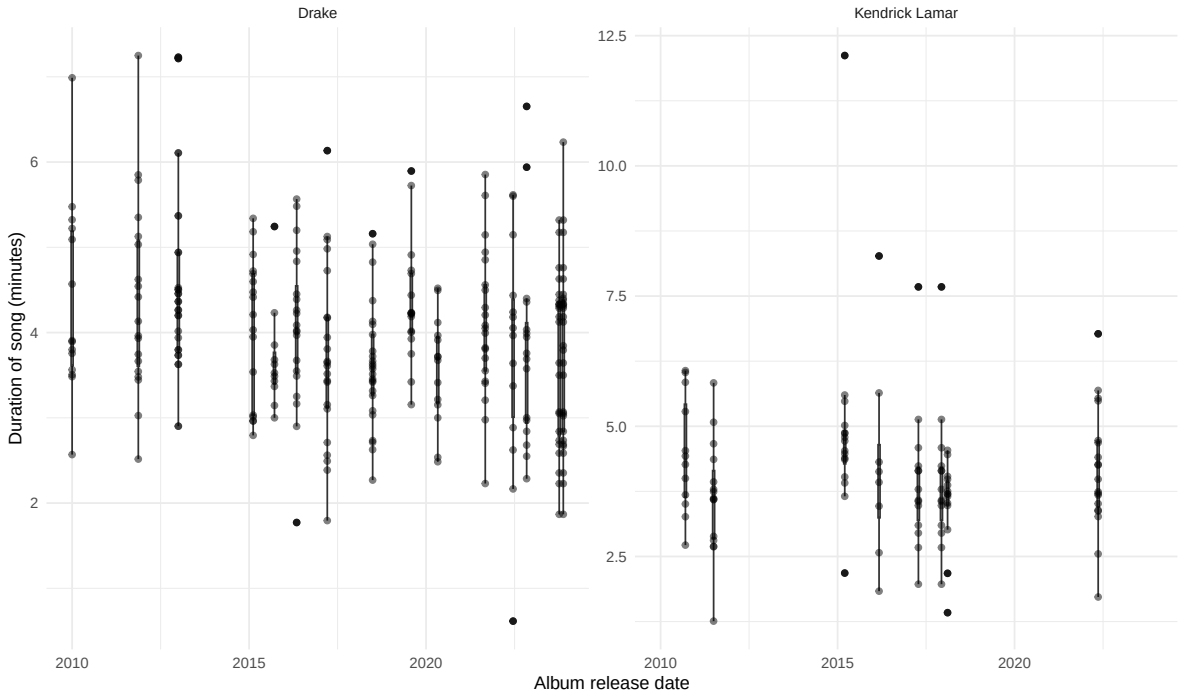

Figure 1: Comparing Duration of Drake and Kendrick Lamar's Albums.

2.2 Relationship between Kendrick Lamar and Drake's albums valence

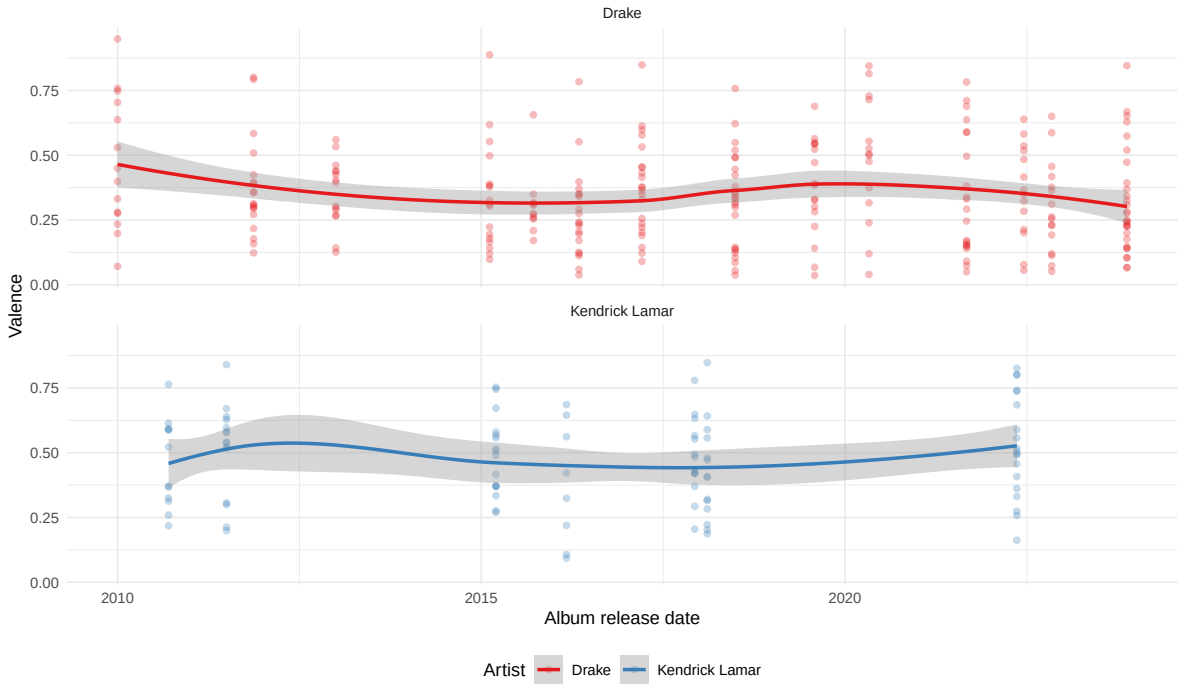

Figure 2: Comparing Valence of Drake and Kendrick Lamar's Albums.

The valence of Drake's songs starts moderately high in 2010 (around 0.5 on average) but declines slightly over time, with a downward trend. The valence of his music appears to flatten out after 2015, indicating a general move toward more neutral or even less positive emotions in his music. The spread of valence is wider in earlier years, implying more emotional variation in his earlier work, but becomes more consistent over time.

Kendrick Lamar's songs seem to maintain a more consistent valence over time, fluctuating but staying relatively stable between 0.3 and 0.6. There is less of a downward trend compared to Drake. His songs start and stay within a narrower emotional range over the years. The standard deviation shown by the shaded area indicates some variability, but overall, Kendrick's music maintains a more constant emotional tone across albums.

Drake's music seems to have experienced a shift toward less positive emotional content over time, becoming more neutral or darker. Kendrick Lamar's music, on the other hand, shows more emotional consistency without a clear trend toward either increasing or decreasing positivity. In summary, while Drake's music shows more experimentation in both song length and emotional tone, Kendrick Lamar's work appears more consistent in terms of both metrics.

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