

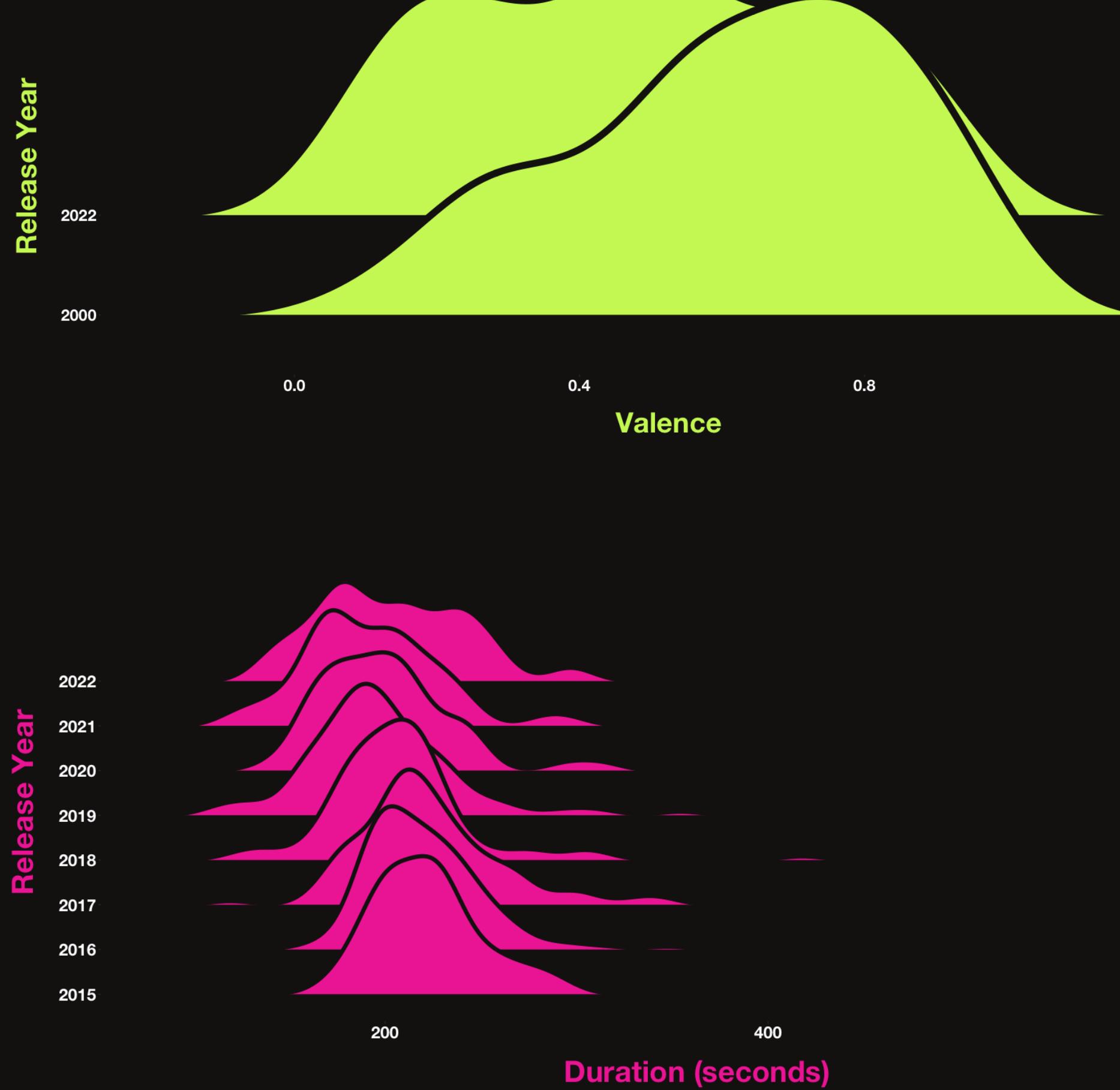


# Spotify® ARE SONGS GETTING UNHOLY?

## GENIUS

Data used for this visualizations is from the official Spotify API available at <https://developer.spotify.com/> for Developer use

Additionally, songs lyrics data was collected through Genius API. Visualizations are created utilizing R programming language in R Studio software.



### Valence

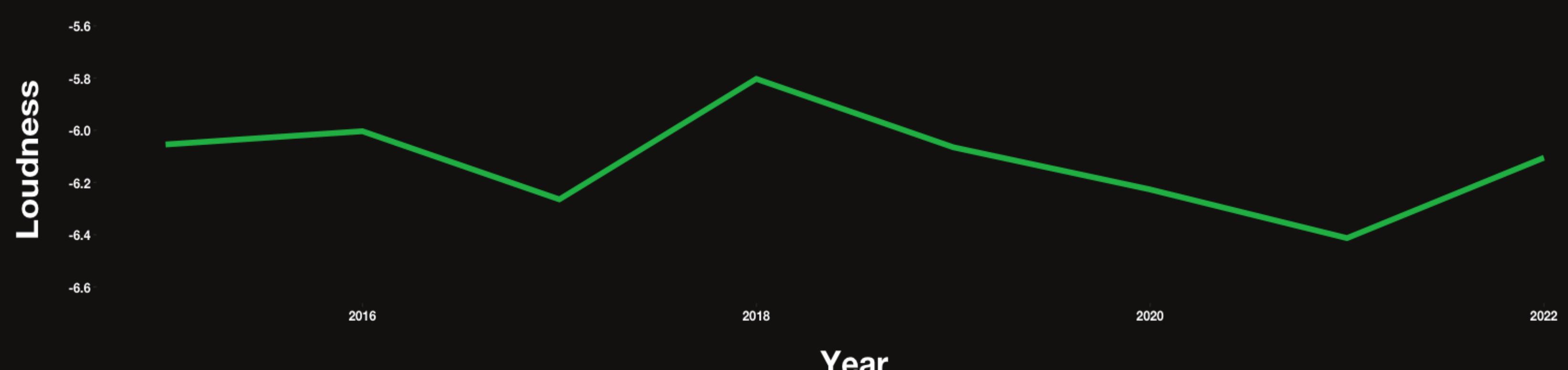
In Spotify API, one of the variables in data once the track features are extracted is Valence and it describes song positiveness. Valence is measured from 0.0 to 1.0, less value indicating less positiveness of the track, and vice versa. Two official Spotify playlists were used to make this visualization: Top of 2022 and All Out 2000 playlists. Visualization clearly indicates that musical positiveness has drastically changed since year 2000.

### Duration

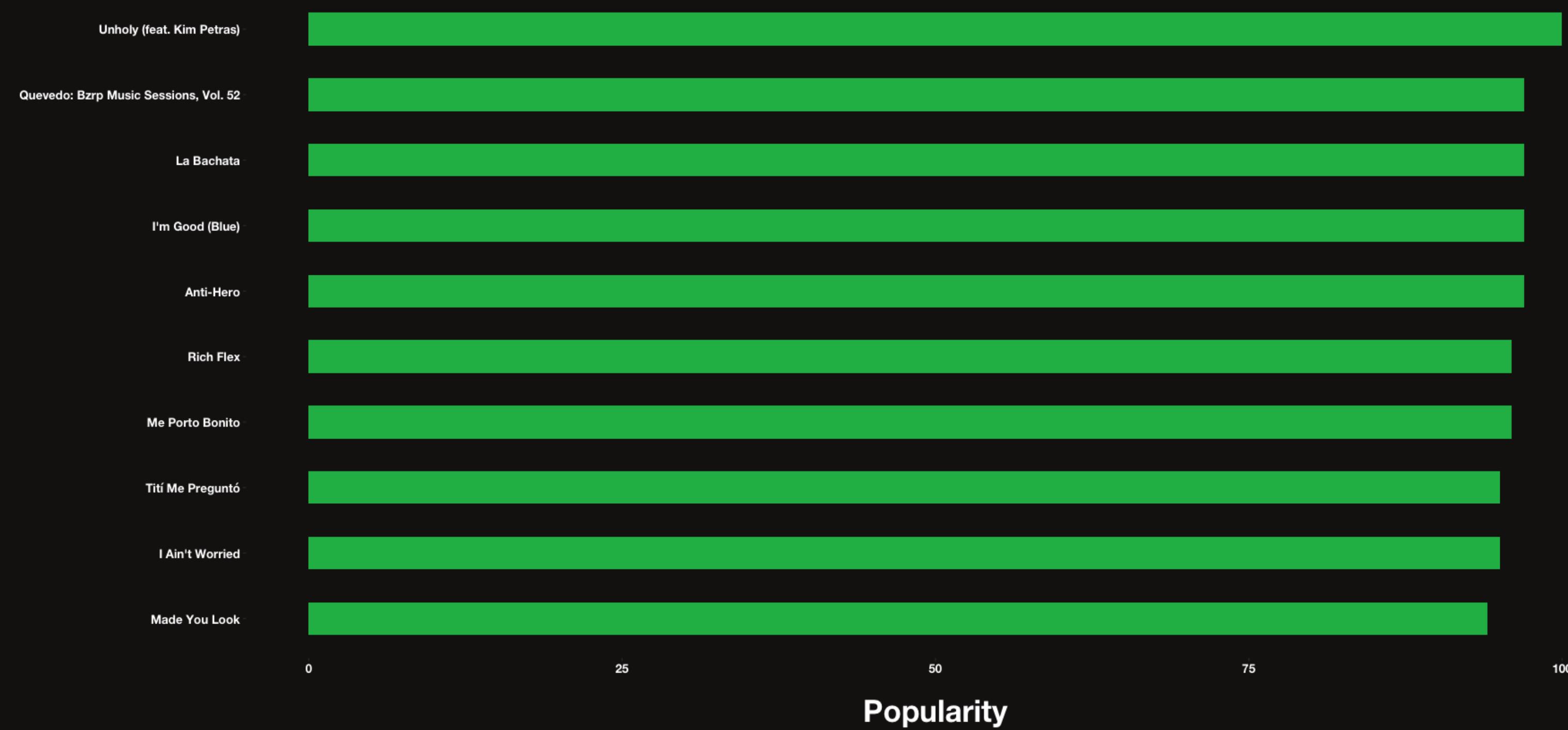
Duration plot shows that there has been a trend of song durations getting shorter and the trend is visible even if we only look at the data from past 8 years. One possible explanations for this could be the recent increase in use of streaming services such as Spotify. Since streaming services pay artists per stream, making shorter catchy music wi

### Loudness

Musical loudness in the Spotify API datasets refer to the overall averaged loudness value across the entire track. Loudness measures range between -60db (decibels) to 0db. Psychologically, musical loudness is the quality of the sound that is equivalent to physical strength (amplitude). Over the past few years, the loudness of popular songs have been changing in lot of ways, but one interesting observation made could be the fact that around 2020 the average musical loudness drastically dropped.



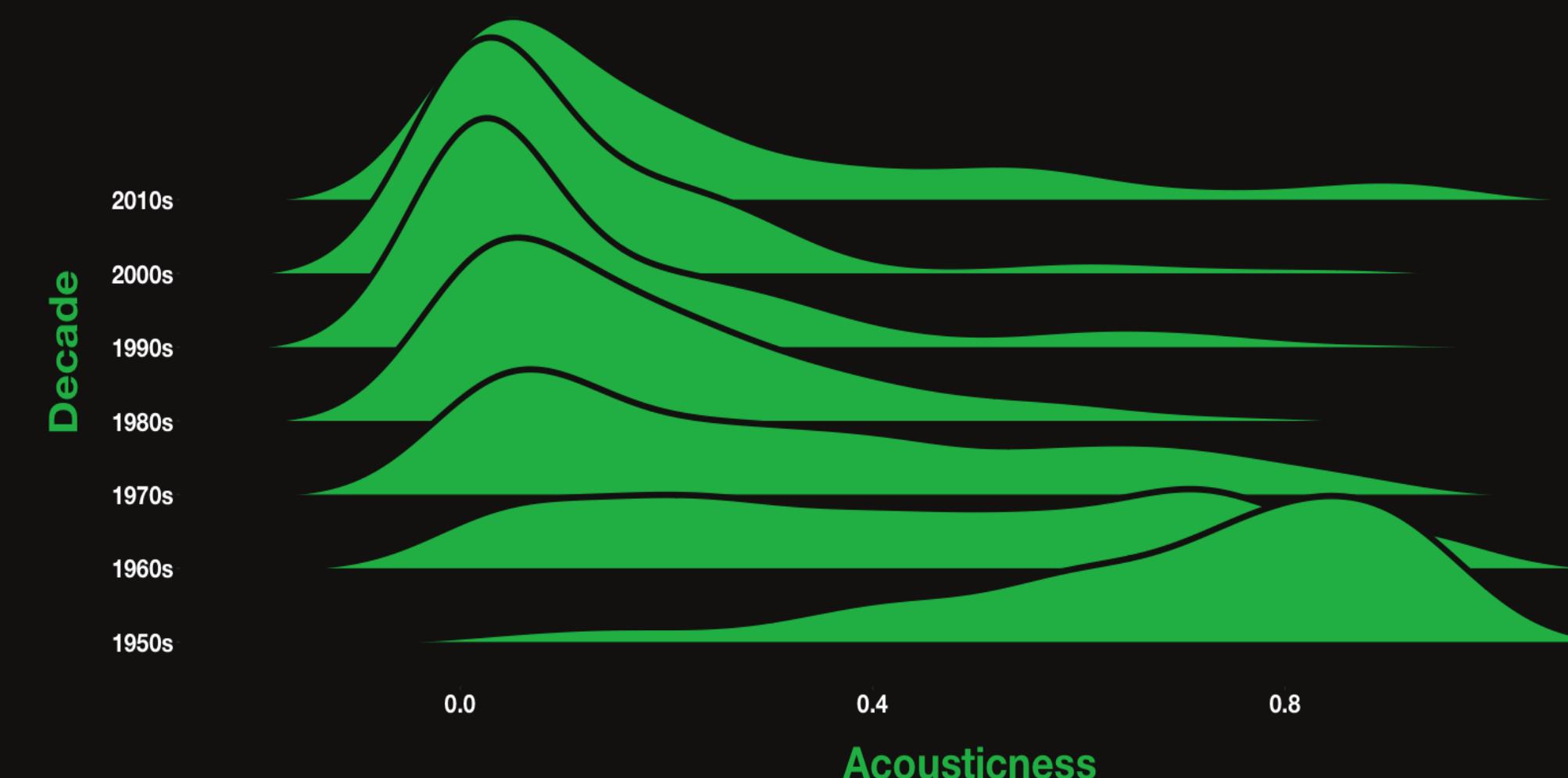
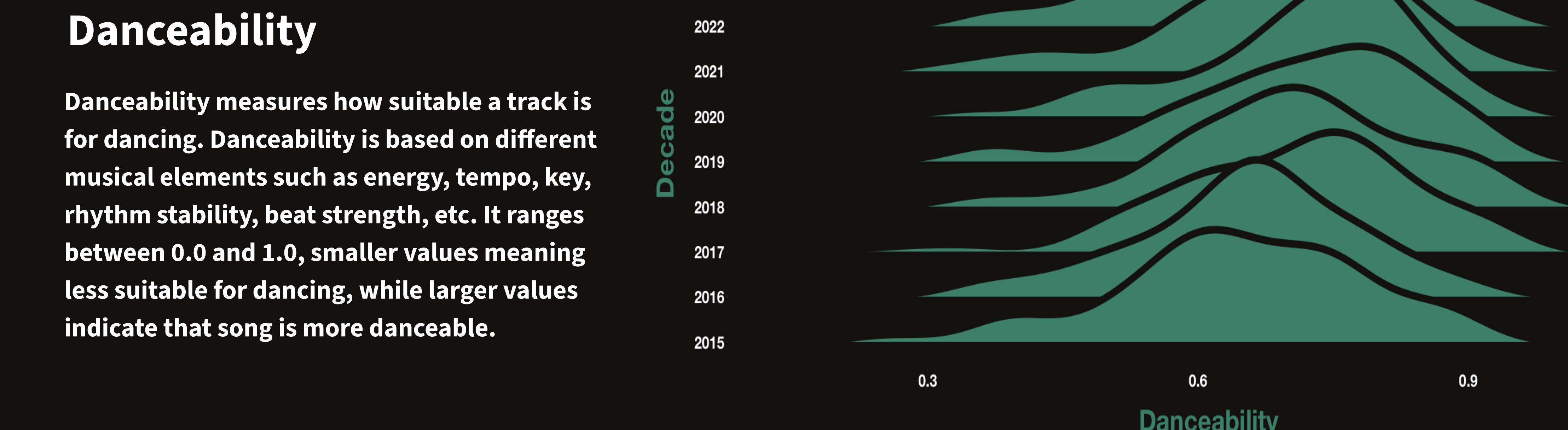
### Billboard Hot 100 Popularity Plot (Top 10)



**Billboard Hot 100** is a famous chart that is being updated weekly. Billboard also has an official Spotify account with the same playlist, which is also being updated consistently. Popularity visualization plots the most popular tracks from Billboard Hot 100 chart and it turns out as of December 12, *Unholy* by Sam Smith & Kim Petras is the most popular. Track popularity is another variable in Spotify API data that ranges between 0 and 100.

### Danceability

Danceability measures how suitable a track is for dancing. Danceability is based on different musical elements such as energy, tempo, key, rhythm stability, beat strength, etc. It ranges between 0.0 and 1.0, smaller values meaning less suitable for dancing, while larger values indicate that song is more danceable.

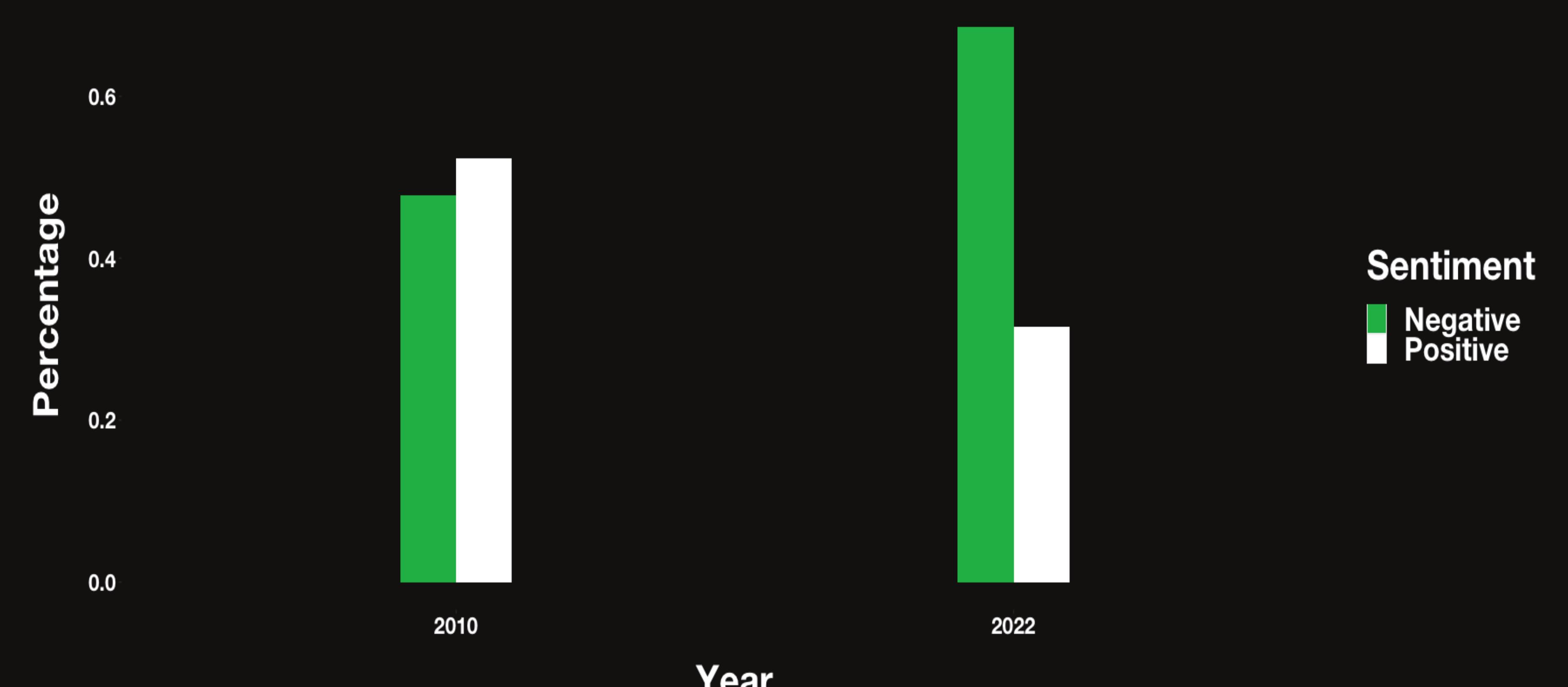


### Acousticness

Acousticness is a confidence measure ranging between 0.0 and 1.0. It represents the confidence that the track is acoustic. This visualization is based on the official Spotify playlists for each decade from 50s through 2010s. There is a clear trend of songs getting less and less acoustic

## Song Lyrics Sentiment Analysis

Visualization below analyzes the song lyrics from Billboard Hot 100 of 2022 and Billboard Hot 100 from 2010 and compares the percentages of negative and positive words used in the lyrics. Since spotify API does not include song lyrics for R package, Genius API was used to merge two datasets, one from each API. Analysis indicates that in 2010, negative words in Billboard Hot 100 chart songs took up around 47% of all the words. However, statistic has drastically changed over the past decade. In 2022, 68% words used in Billboard Hot 100 song lyrics have negative sentiment.



Some of these visualizations support the idea that songs have actually been getting negative. Decreasing trend in valence indicates that newer songs sound angrier, or sadder, less acoustic, louder, shorter songs with mostly negative lyrics. The reason behind this is not certain. However, it is an ongoing pattern and it can be predicted that music going to be released will have similar features.

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