TEXAS
The University of Texas at Austin

YOUTUBE MUSIC VIDEOS - WHAT MAKES A HIT?

Predicting Song Success with YouTube User Comments

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MSBA 2019 – Text Analytics

Outline

- **Objective**
- **Data**
- **Findings**
  - LDA
  - Predictive Model
  - Lift
  - Sentiment Analysis
  - WordCloud
- **Conclusion**
- **Appendix**

Objectives

- **Mega Hit or Just a Hit?**
  - First 5,000 YouTube User Comments predictive power
  - Mega Hit Song = Billboard Top 10 $\geq$ 14 weeks

Data

- **Source:**
  - Billboard Hot 100 Top 10
  - YouTube User Comments

- **Scope**

  - 10 Artists across genres from 2015 - 2018

  - 20 Songs (1 Mega Hit & 1 Non-Mega Hit from each artist)

  - Excluded replies to comments and likes

Data – Mega and Non-Mega Hits

Artist	Mega Hit	Non-Mega	Peak Rank	Weeks - Top 10	Comments
Ariana Grande	Side to Side	Dangerous Woman	#4 / #8	14 / 2	316,834 / 126,566
Drake	God's Plan	Summer Sixteen	#1 / #6	26 / 1	381,654 / 6,933
Ed Sheeran	Shape of You	Castle on the Hill	#1 / #6	33 / 1	616,437 / 52,329
Imagine Dragons	Thunder	Next to Me	#4 / #0	18 / 0	180,039 / 21,422
Kendrick Lamar	Humble	DNA	#1 / #4	15 / 2	133,875 / 64,987
Migos	Bad and Boujee	MotorSport	#1 / #6	14 / 7	133,034 / 99,199
Post Malone	Rockstar	Congratulations	#1 / #8	25 / 6	195,236 / 137,227
Rihanna	Work	Kiss It Better	#1 / #10	18 / 2	278,381 / 46,055
The Chainsmokers	Closer	Roses	#1 / #6	32 / 6	226,134 / 8,539
The Weeknd	Starboy	I Feel It Coming	#1 / #4	19 / 5	216,976 / 98,663

https://en.wikipedia.org/wiki/List_of_Billboard_Hot_100_top-ten_singles_in_2017

Findings – LDA

Mega-Hit Corpus

Topic 1	Topic 2	Topic 3	Topic 4	Topic 5
Love	Like	Back	omg	hair
Yes	Look	S***	best	early
Que	Million	F***	people	God
Queen	Got	Damn	one	Lit
Wow	Lol	Fire	see	first
La	1	N****	ever	new
😶	dont	na	need	weekend
100K	B****	finally	see	else

Non-Mega-Hit Corpus

Topic 1	Topic 2	Topic 3	Topic 4	Topic 5
Love	Best	Good	omg	feel
Much	still	S***	amazing	F******
😶	better	F***	million	first
Nice	yes	Damn	beautiful	coming
Que	always	Drake	early	like
Riri	next	N****	1	finally
beat	oh	F******	squad	great
you	let	notification	yes	3

Findings – Predictive Model

- **Priors**
  - 50% likelihood for positive/negative class

- **Models**

Bernoulli (73%)

	True Condition	
Predicted Condition	26	24
	3	47

Multinomial (56%)

	True Condition	
Predicted Condition	14	36
	8	42

- **Improvements Tried**
  - Removal of overly specific words
  - Inclusion of emojis and special characters
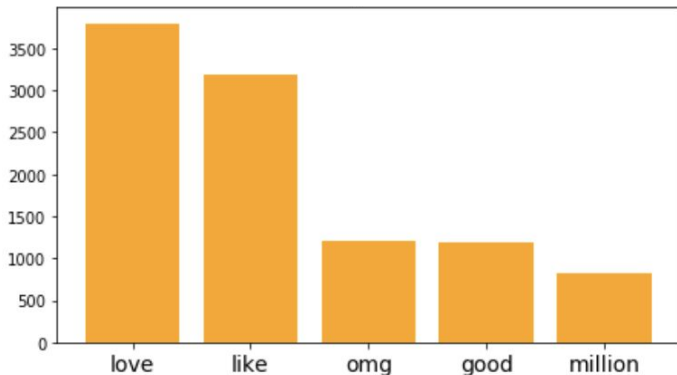 - Grouping reviews into comment groups
  - Test/train data selection

Lift Ratios
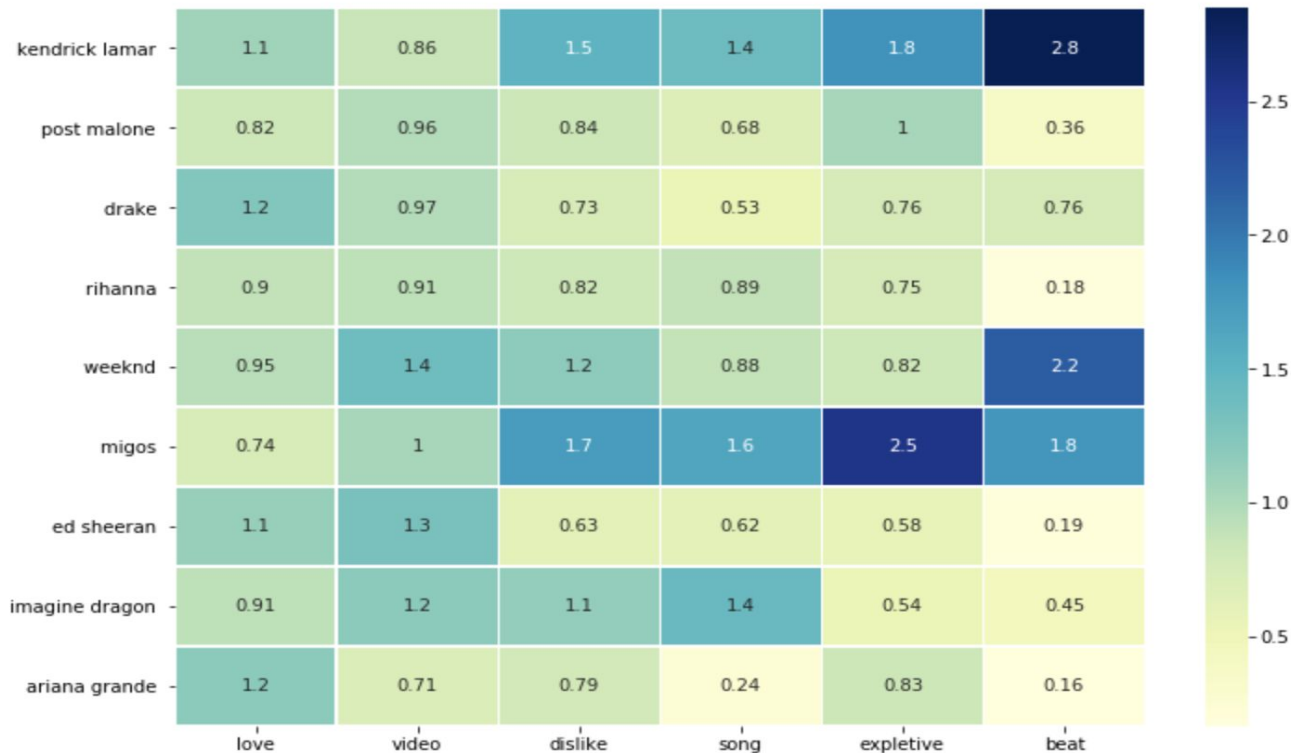
Findings – Sentiment Analysis
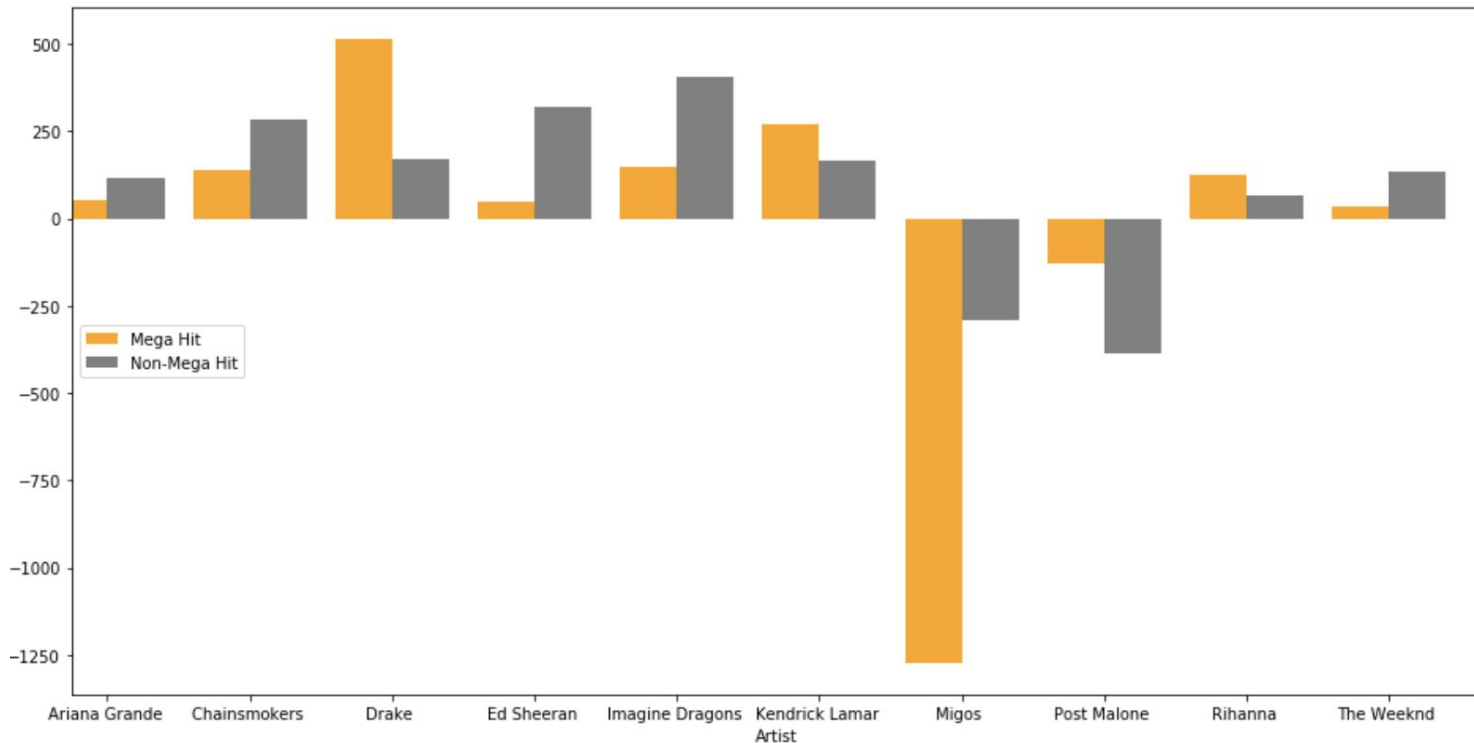
Findings – WordCloud / Top Words

Mega Hit

Non-Mega Hit
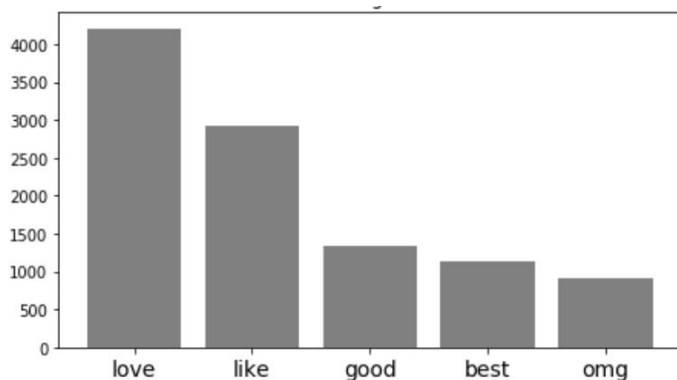
Conclusion

- **Could NOT predict** Mega Hit Songs based on user comments
- **Improvement**
  - **Larger Sample**: Additional 20 songs
  - **Control Diction**: Limit to 1 music genre
  - **Sample Polarity**: Compare mega hits to failures
  - **Different Forum**: Informative/Professional Reviews

Appendix

- **Word Cloud** - All 20 songs

Ariana Grande – Side to Side

Chainsmokers - Closer

Drake – God's Plan
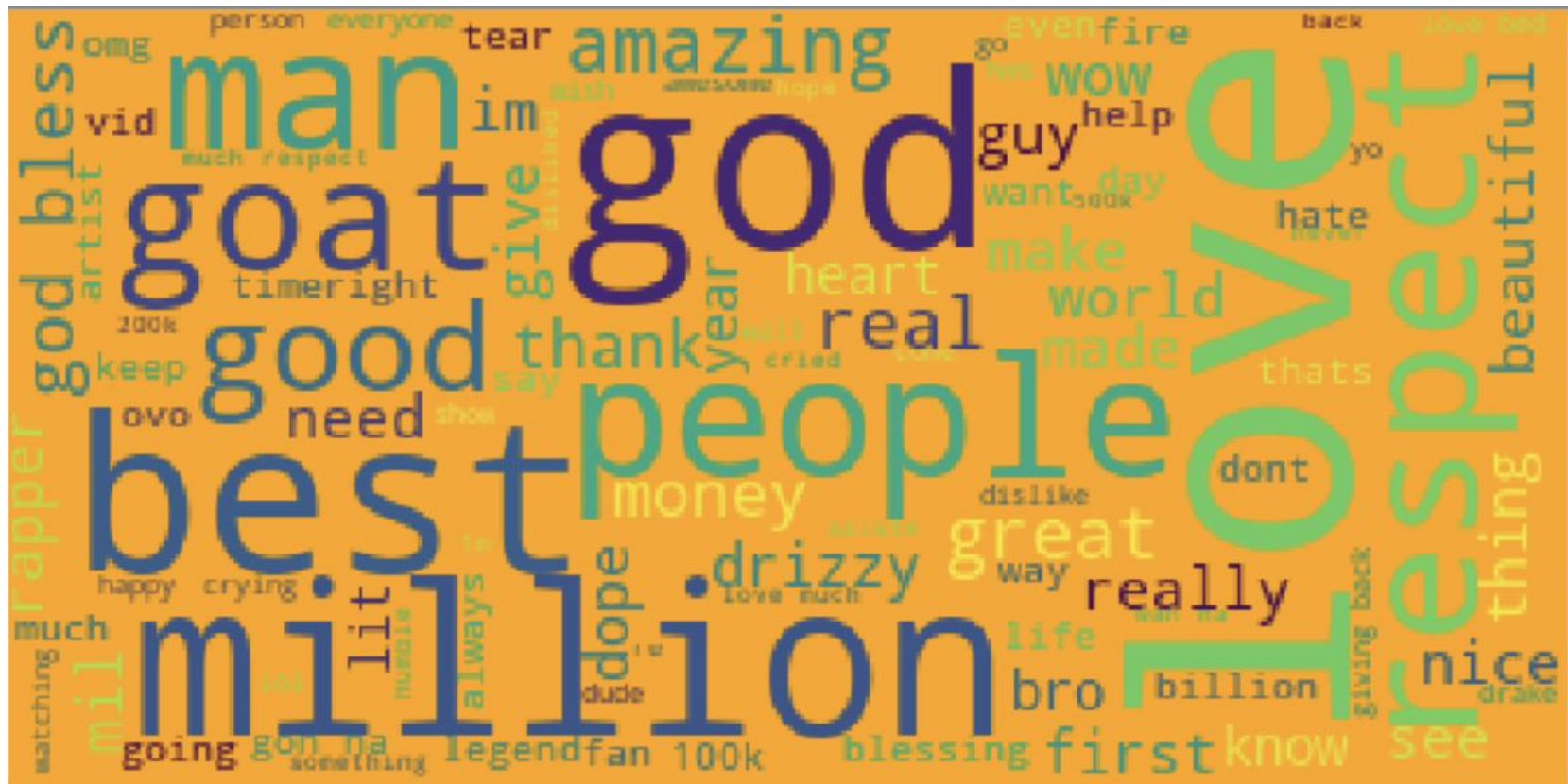
Ed Sheeran – Shape of You

Imagine Dragons - Thunder

Kendrick Lamar - Humble

Migos – Bad and Boujee
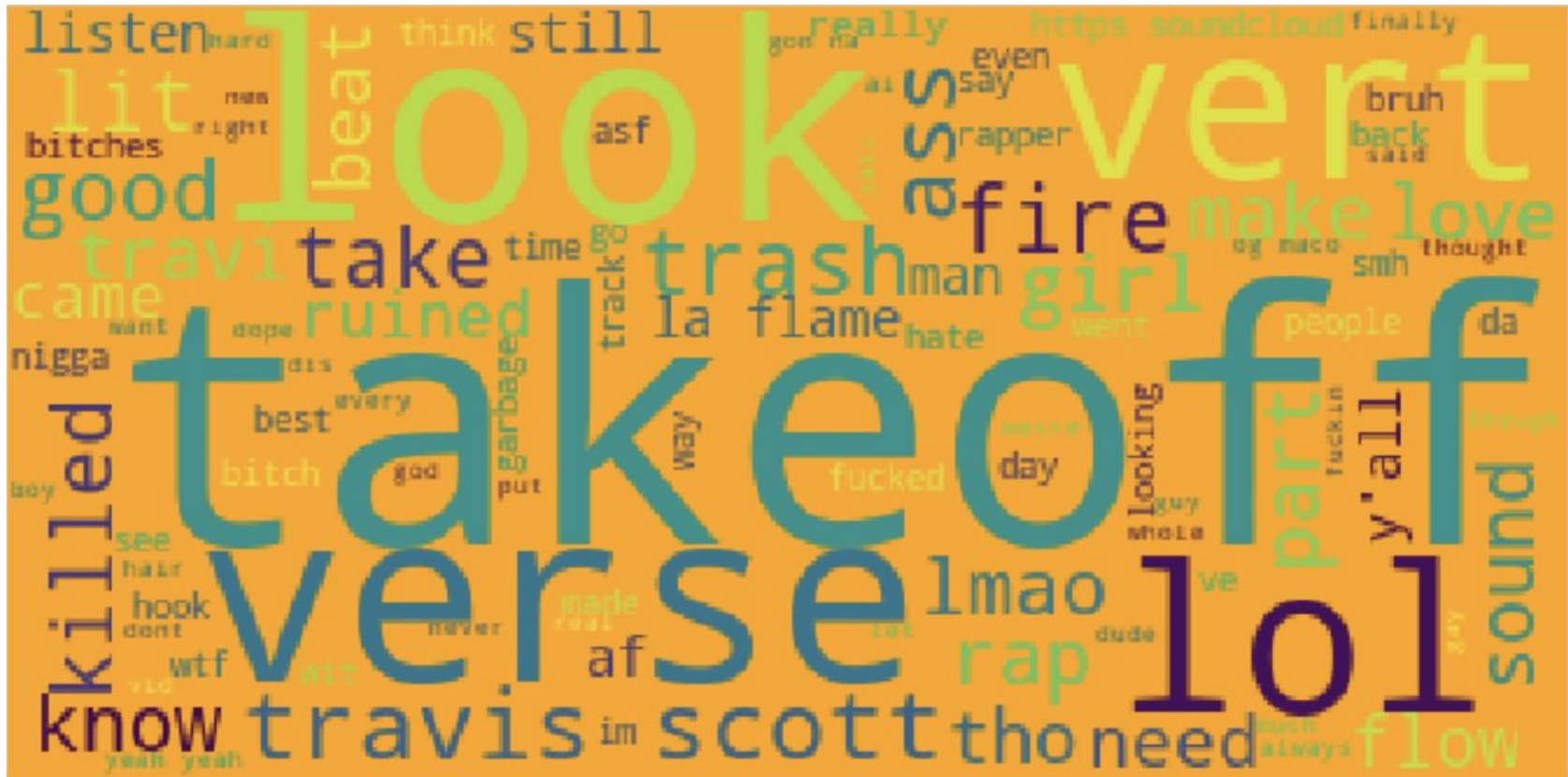
Post Malone - Rockstar
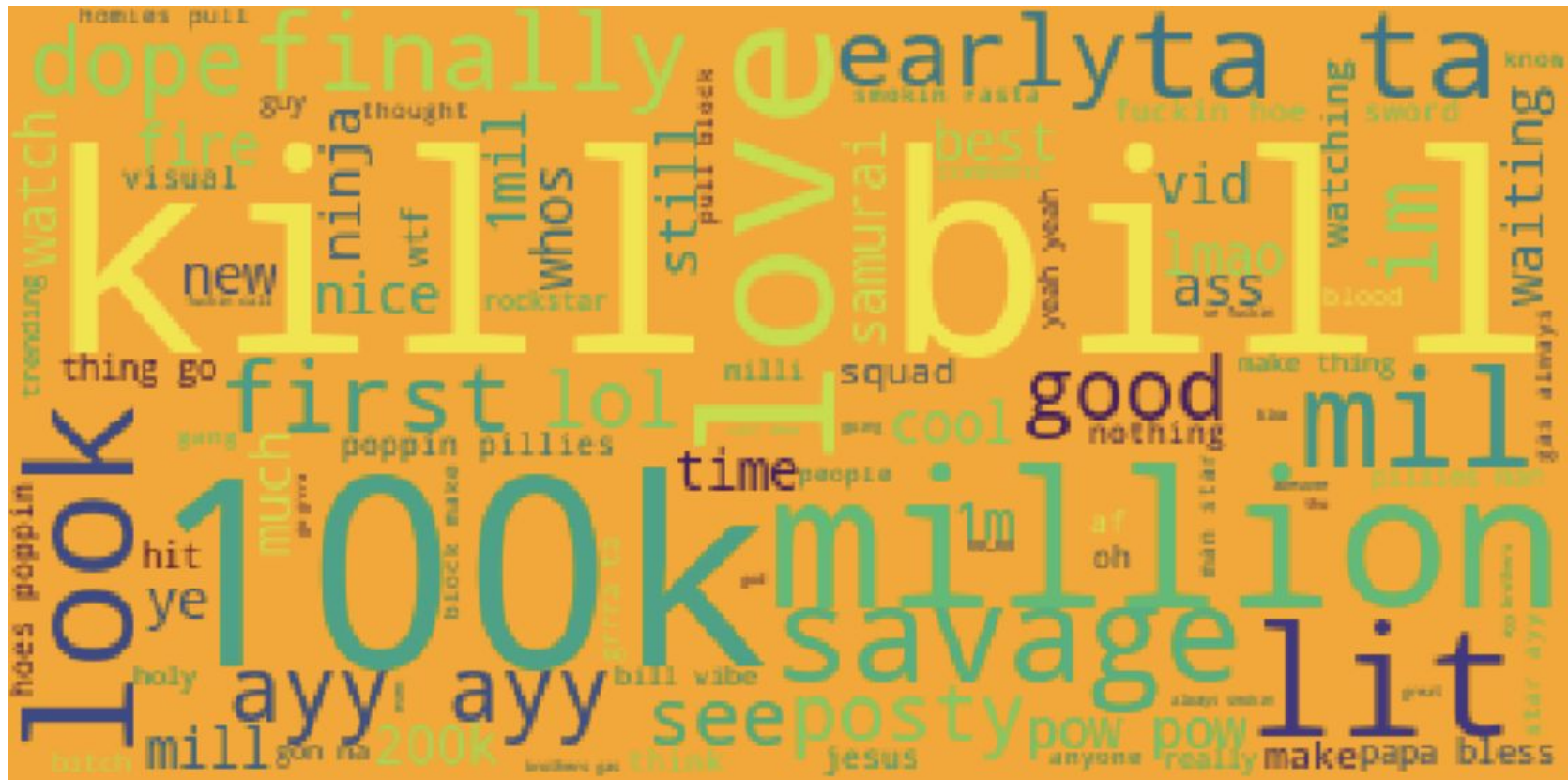
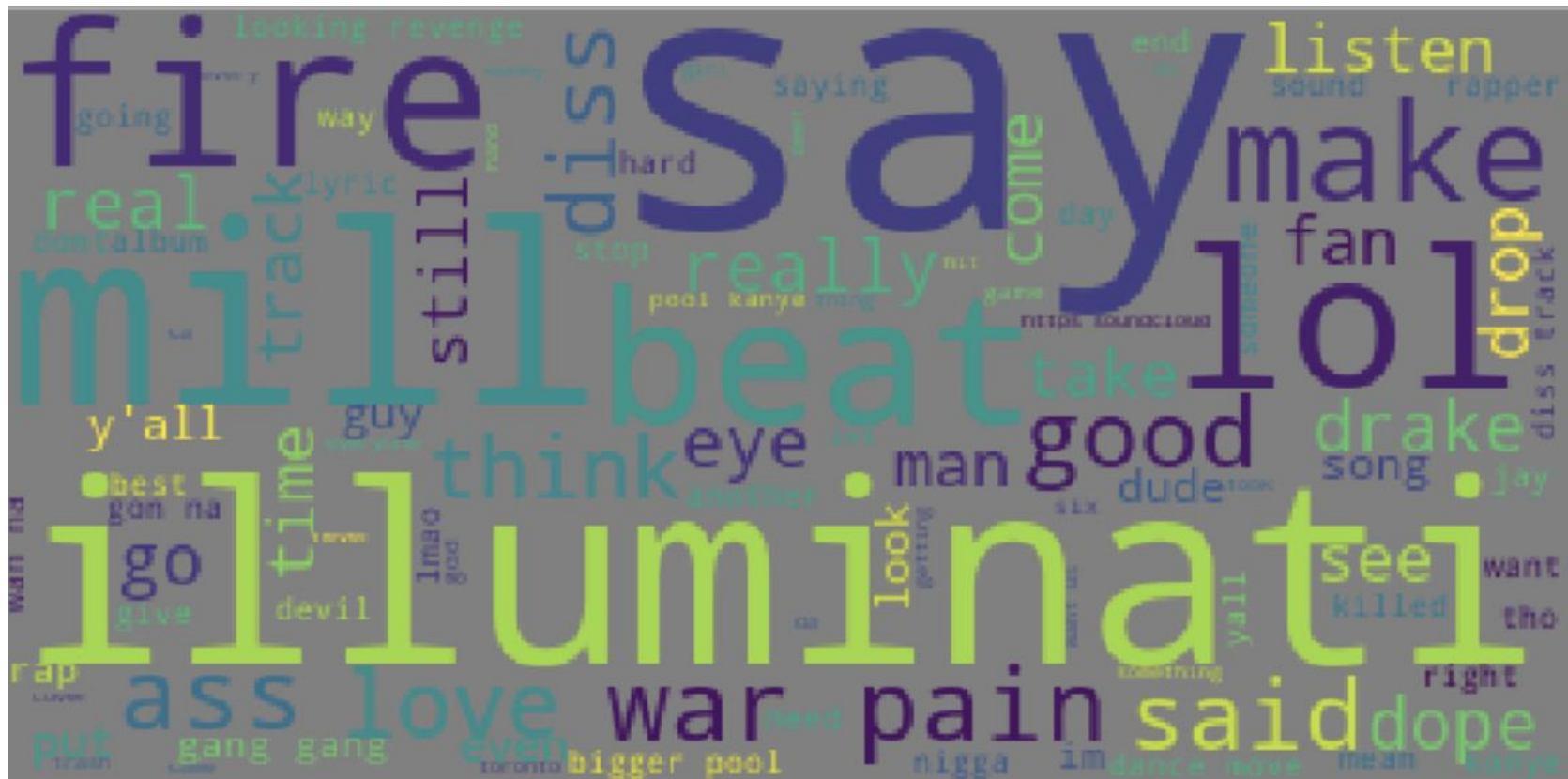# Rihanna - Work
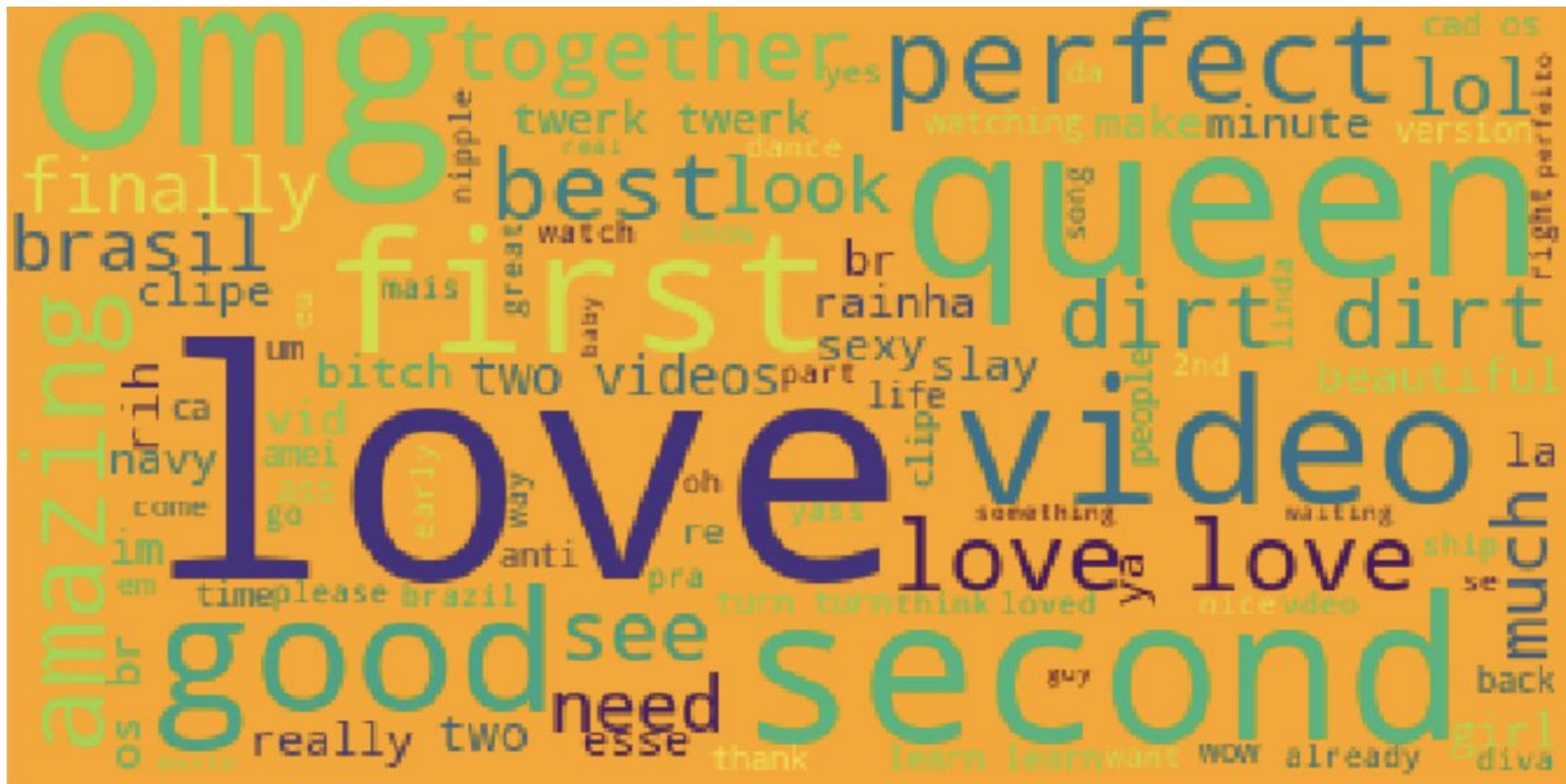
The Weeknd - Starboy

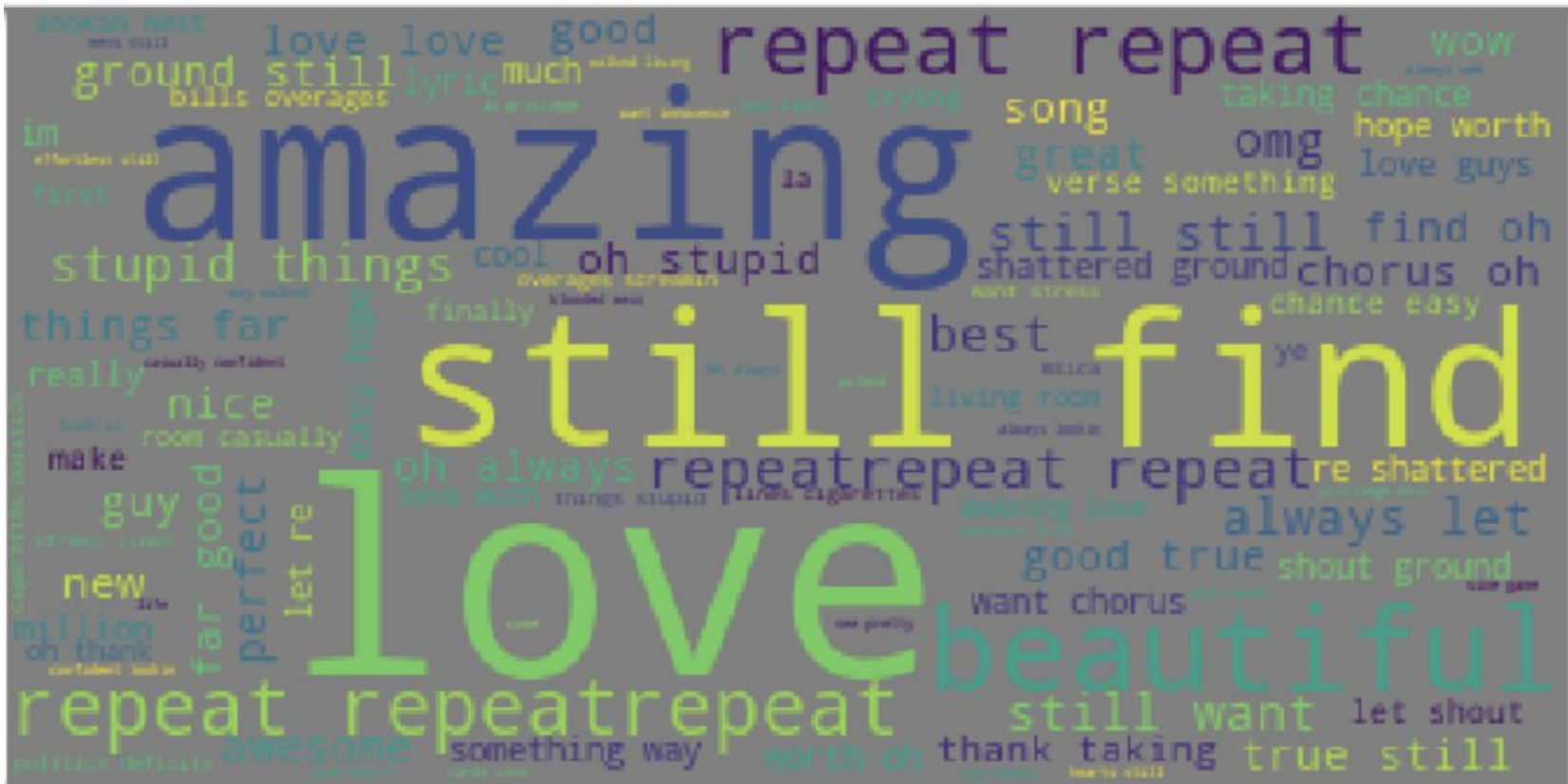# Ariana Grande – Dangerous Woman
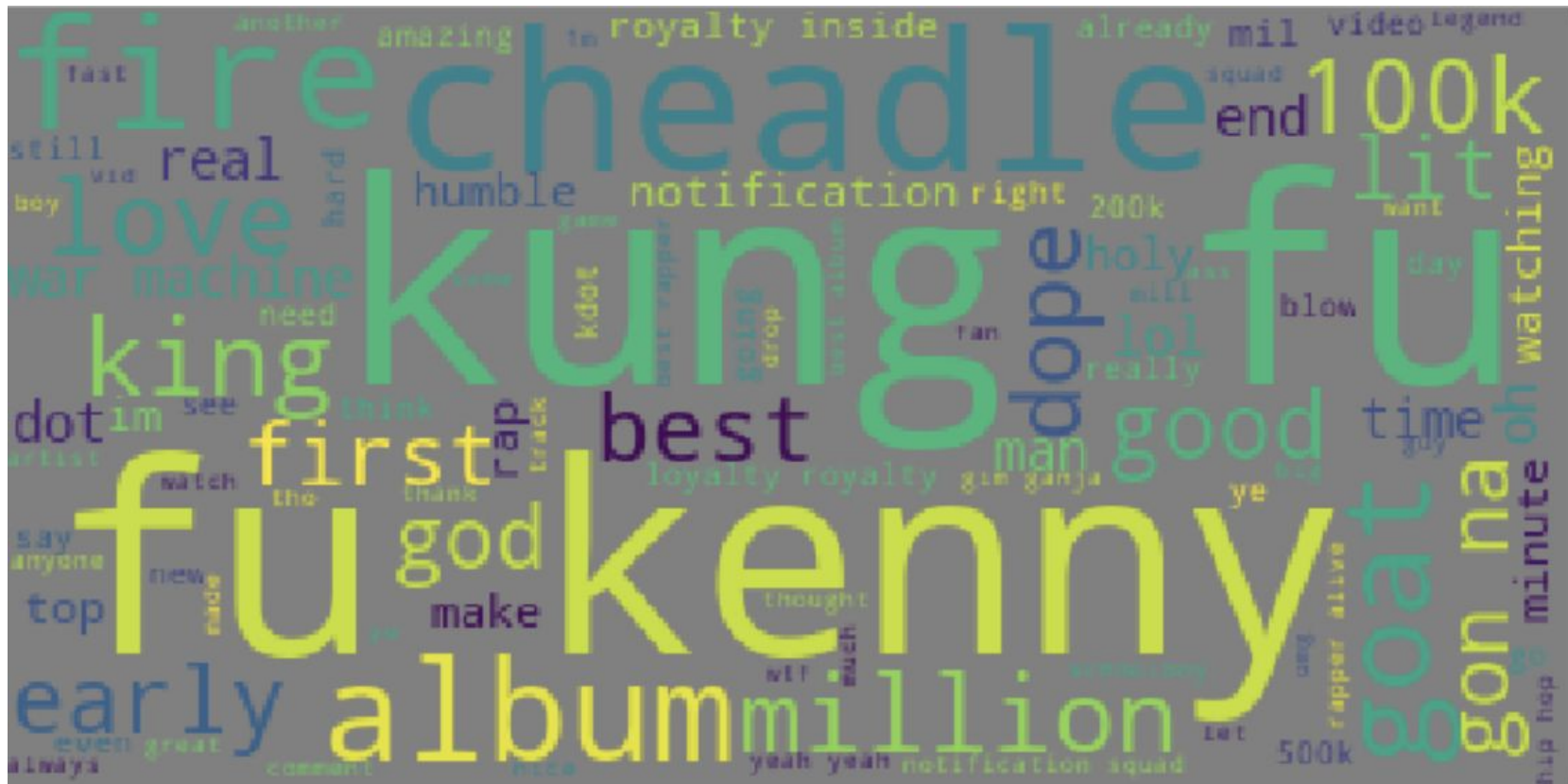
Chainsmokers - Roses
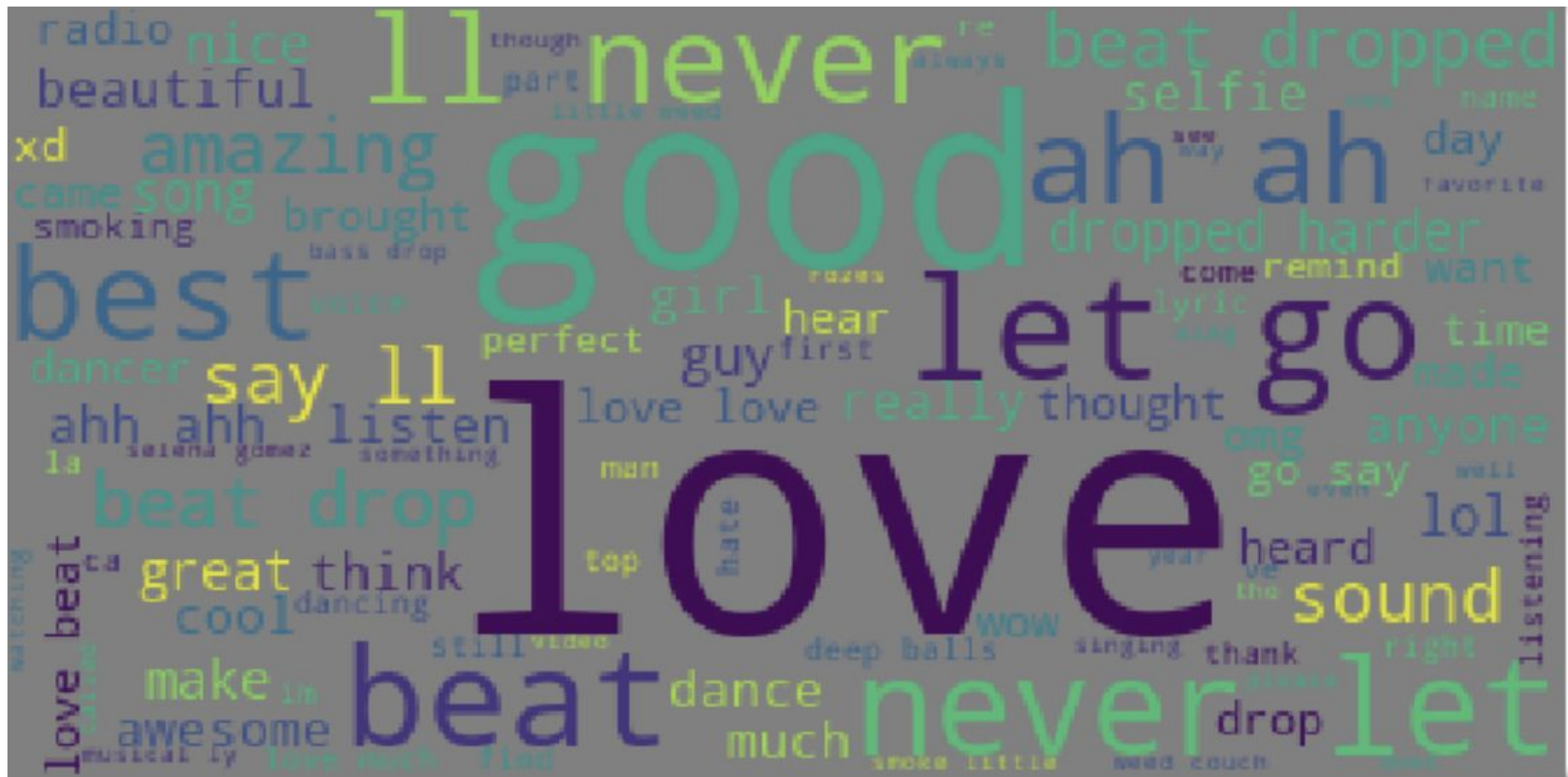
Drake – Summer Sixteen

Ed Sheeran – Castle on the Hill

Imagine Dragons – Next to Me

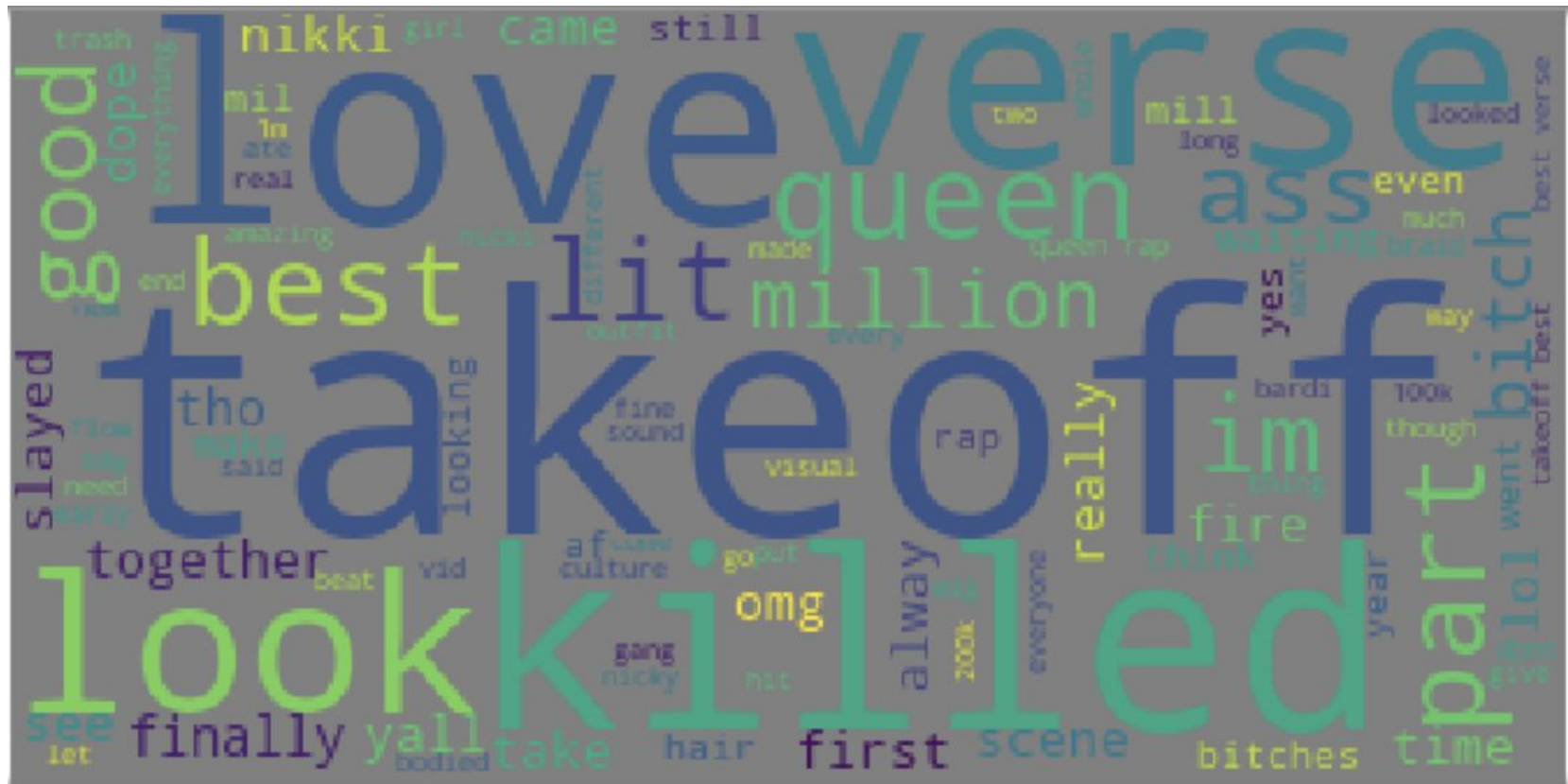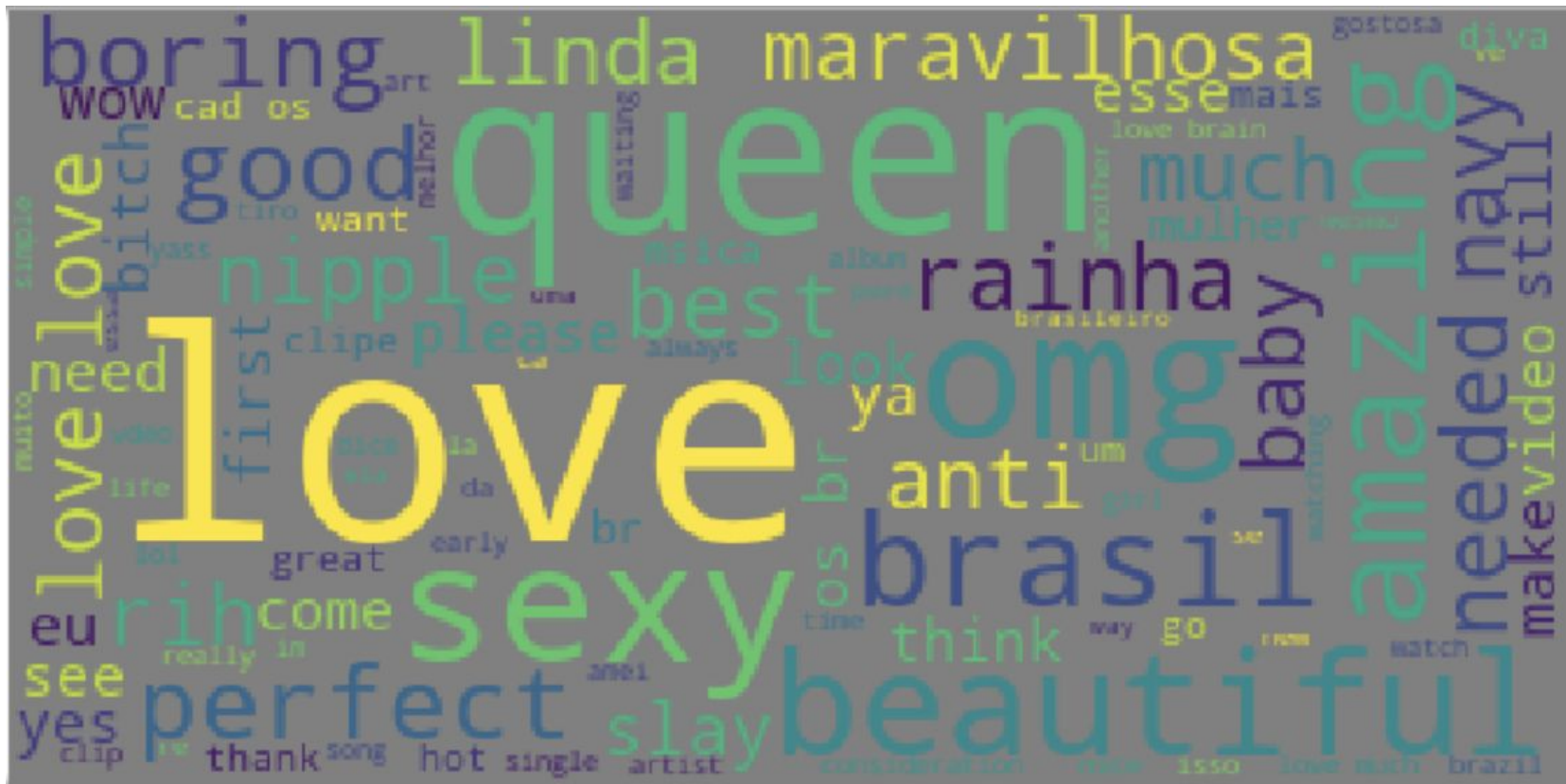# Kendrick Lamar - DNA

Migos - Motorsport

Post Malone - Congratulations

Rihanna – Kiss It Better

The Weeknd – I Feel It Coming