Verbal Complexity Of Popular Song Lyrics
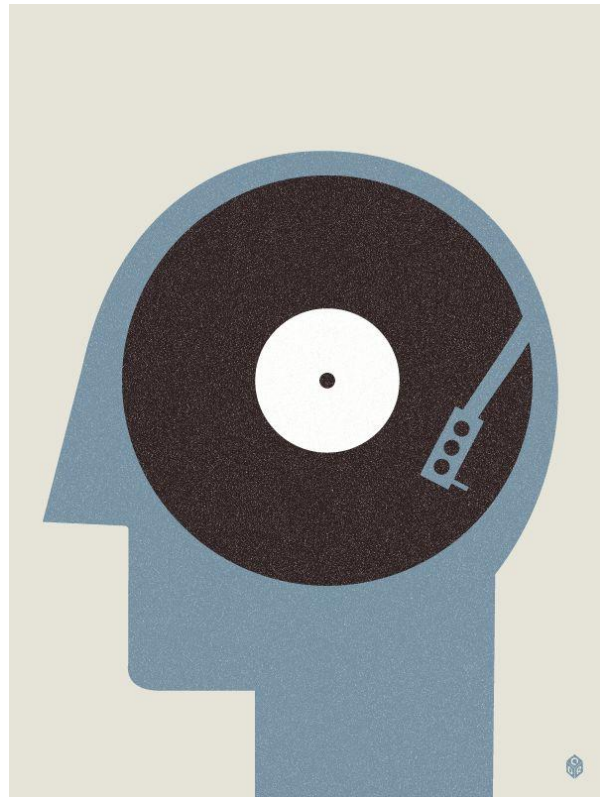
Group 1

Jordan Field
Wansen Zhang
Daniel Shak
Yuekuan Luo

Contents

Background and Motivation

- Create qualitative and quantitative metrics for lyrics over time

- Are song lyrics getting "more complex" or "less complex"?

  - How can we quantify this with simple metrics?

- Does lyrical content change over time?

  - Does that reflect cultural trends/shifts?

Methods

- Average and variance of word length over time

  - With or without duplicates

- Average number of unique words per song

- Most commonly occurring words

  - Excluding articles, pronouns, etc.

- Visualization of these trends
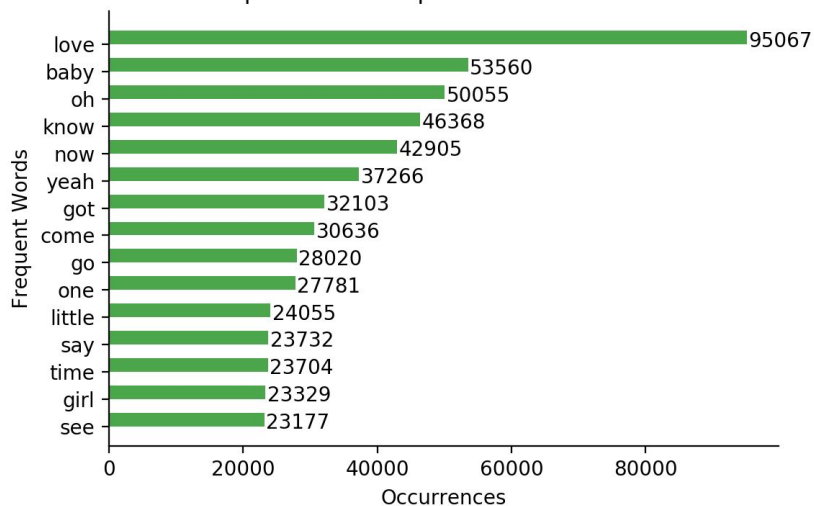
  - Matplotlib, Wordcloud
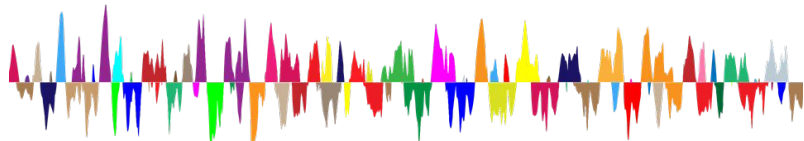
Dataset

- Scraped artist and song names from Billboard Top 100 lists since 1958

  - Using: "BeautifulSoup", "aiohttp", and "asyncio"

- Used the genius.com API to find lyrics using the prior data

  - Using: "BeautifulSoup" and "requests"

- Approximately 300,000 songs listed on the Billboard site

  - 28,922 unique songs

    - 84% were successfully retrieved (24,253)

- Ability to group song lyrics by different time resolutions

  - "week", "month", "year", "decade"
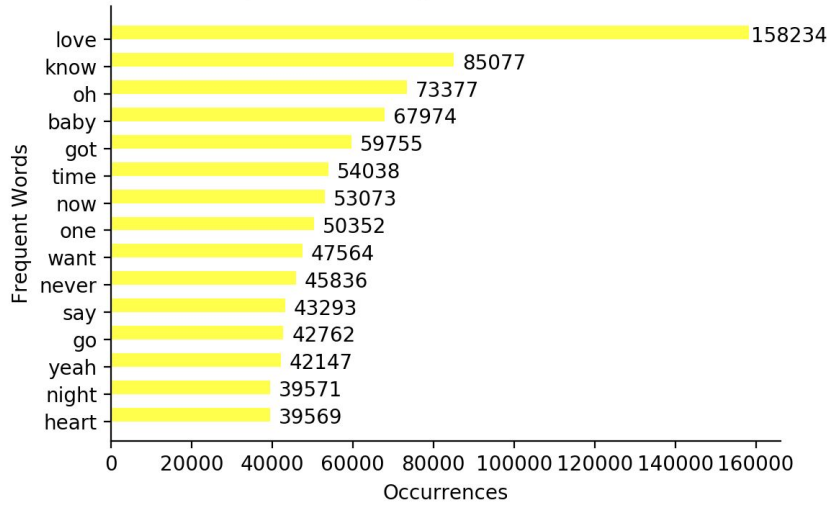
Qualitative Analysis

Top 15 Most Frequent Words in 1960s

Frequent Words	Occurrences
love	95067
baby	53560
oh	50055
know	46368
now	42905
yeah	37266
got	32103
come	30636
go	28020
one	27781
little	24055
say	23732
time	23704
girl	23329
see	23177

- "Love" and "baby" most common

- No expletives

- "Oh" fairly common, "yeah" not as much

- "Know" and "got" uncommon

Top 15 Most Frequent Words in 1980s

| Frequent Words	Occurrences
love	158234
know	85077
oh	73377
baby	67974
got	59755
time	54038
now	53073
one	50352
want	47564
never	45836
say	43293
go	42762
yeah	42147
night	39571
heart	39569

- "Love" still popular, but not "baby" as much
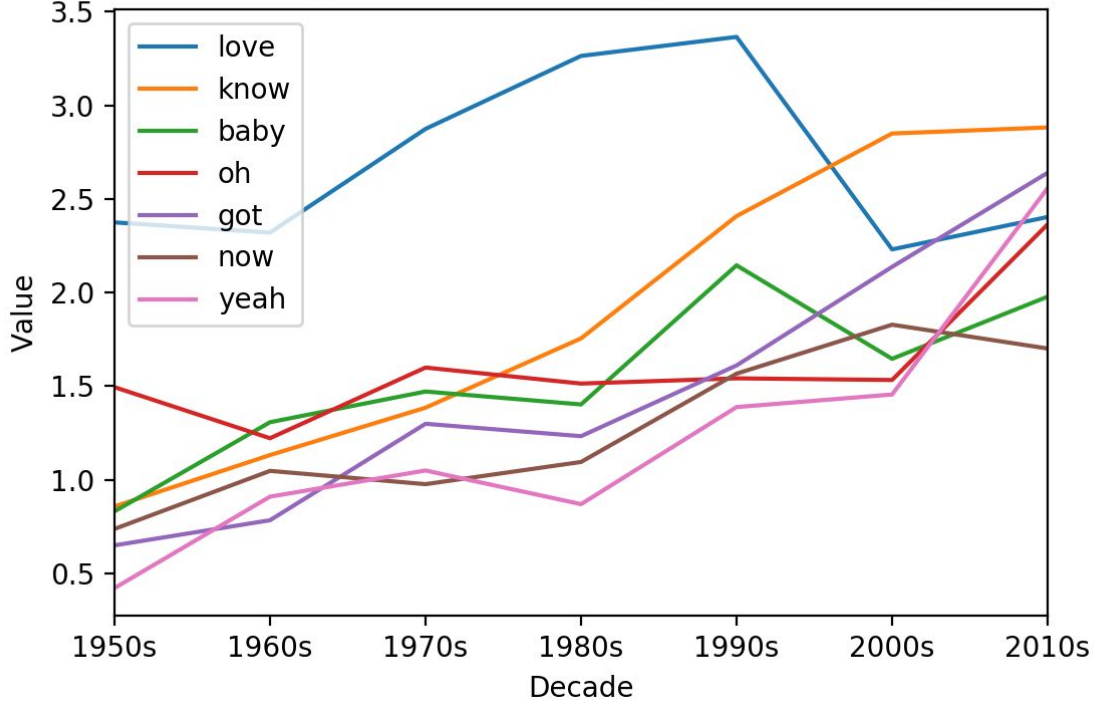
- "Know" and "got" are rising

- "Want" more common, as well as "night"

- "Oh" is common

Top 15 Most Frequent Words in 2010s

| Frequent Words	Occurrences
know	135687
got	124283
yeah	120412
love	113163
oh	111298
baby	93117
now	80083
go	74610
aint	64817
cause	63184
wanna	62975
let	61135
want	60825
girl	59796
make	58143
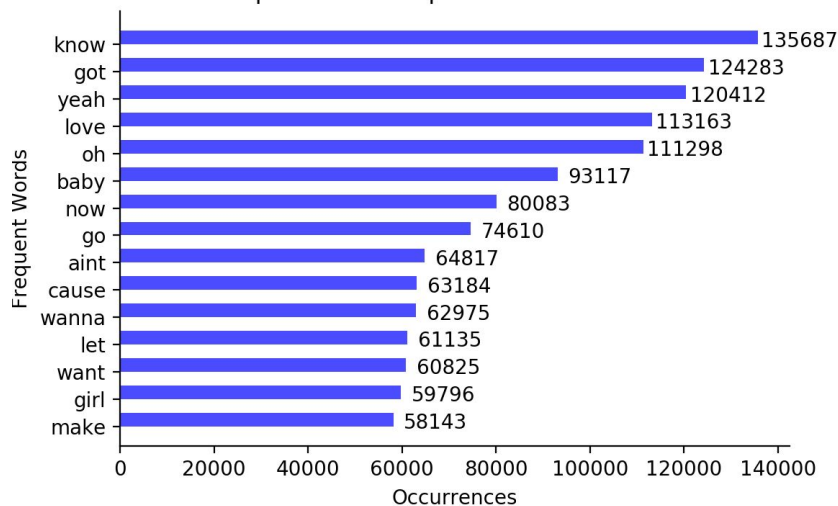
- "Love" and "baby" much less common

- "Know" and "got" much more common

- "Yeah" very common, overtaken "oh"

- Many more expletives
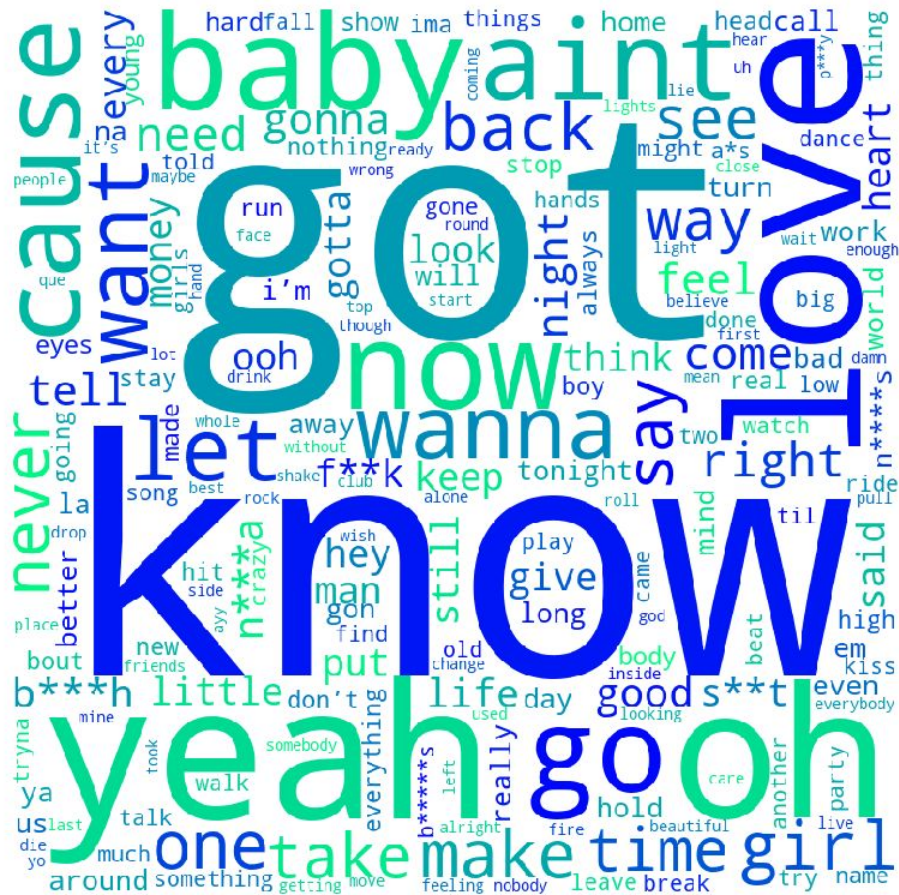
Average Occurrence of Top Words Per Song

- "Love" is decreasing in occurrence
  - Cynicism regarding "traditional" romance?
- "Know" and "got" are increasing in occurrence
  - Individualistic and possessive values?
- Onomatopoeic words increasing: "yeah" and "oh"
  - Especially in recent years
  - Might be construed as less substantive

Words in 1960s · Words in 1970s · Words in 1980s · Words in 1990s · Words in 2000s · Words in 2010s
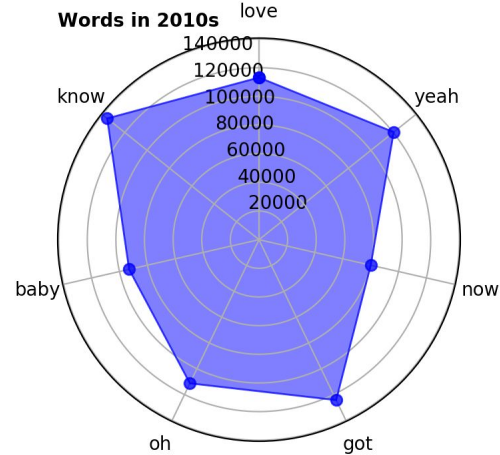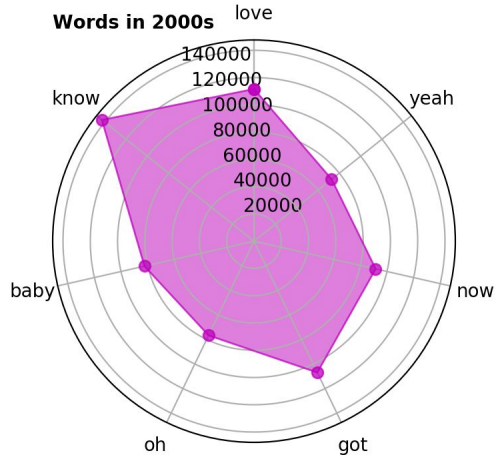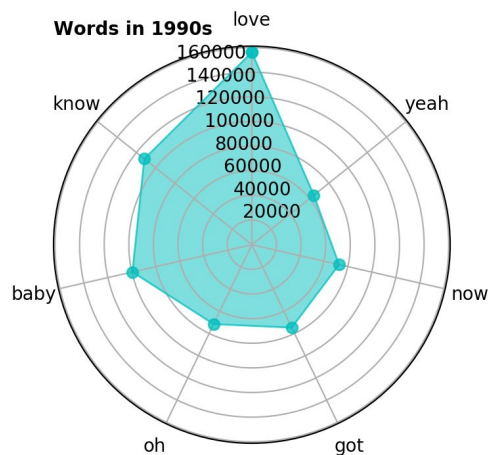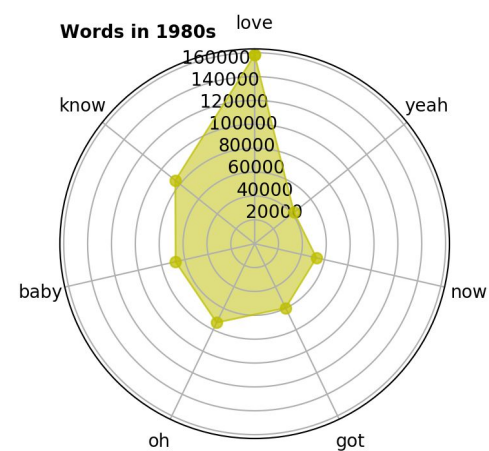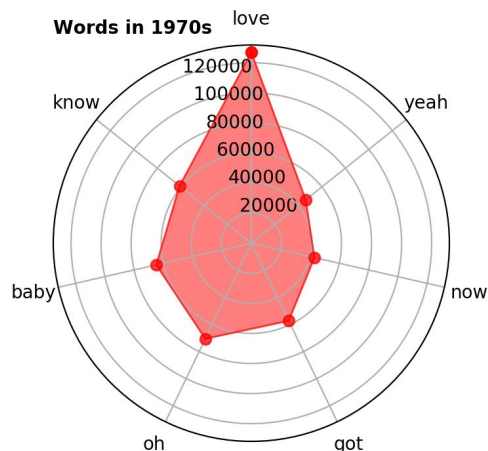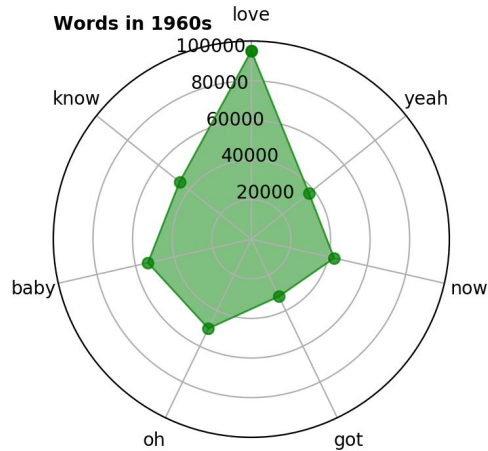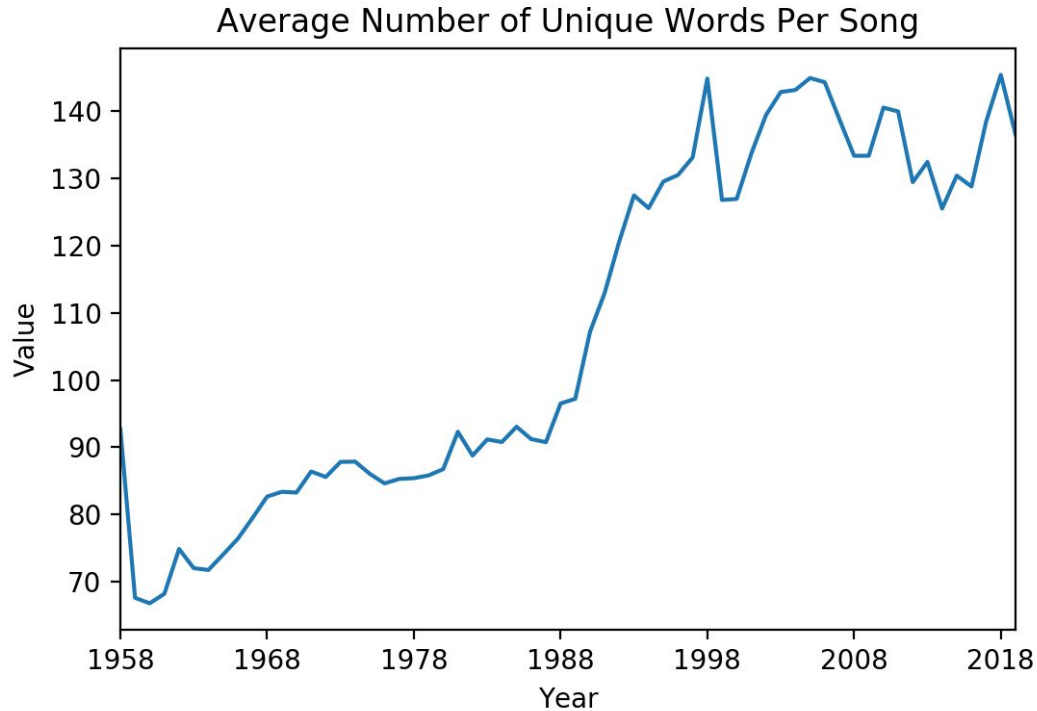
● General trend of increasing diversity in lyrical content (at least among top words)

Quantitative Analysis
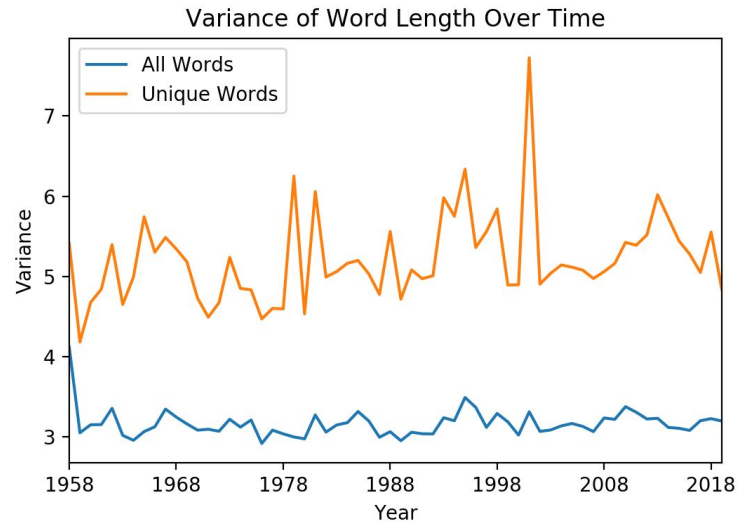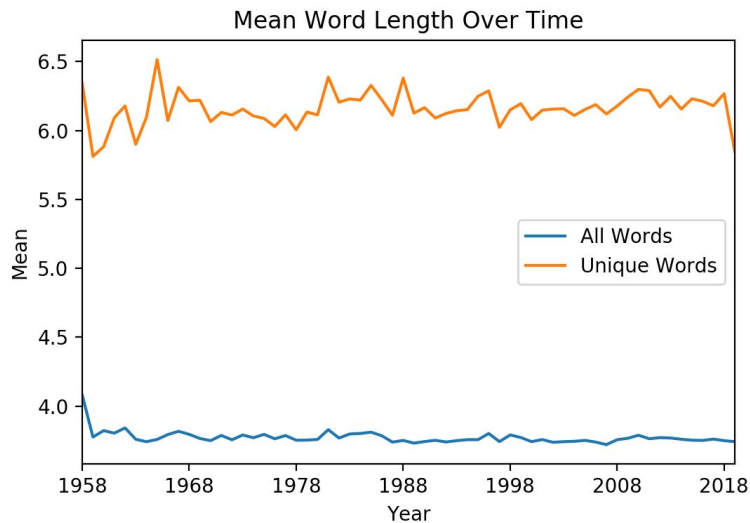
- Average length consistent over time, but shorter words more frequent

- Certain periods of high variance, though we aren't exactly sure why

  - Possibly more lyrically-complex songs alongside lyrically-simple songs

Average Number of Unique Words Per Song

- Rapid increase between 1988-1998
  - Increasing popularity of hip hop music
  - New vernacular/slang
  - More lyrics in general
- Fairly steady since then
  - Hip hop music has remained popular
  - Continued to introduce new slang

Conclusion

- Average word length fairly consistent

- Increasing # of unique words may reflect genre preferences/slang

- Lyrical content has some general trends over time

  - Less about "love", more about "knowing" or "getting" things

  - More "yeahs" and "ohs"

  - More explicit language

  - Content may be more diverse in recent years (among top words)

Thanks for listening!
Q & A