Analyzing Denzel Curry's Lyrics Through Text Mining Methods

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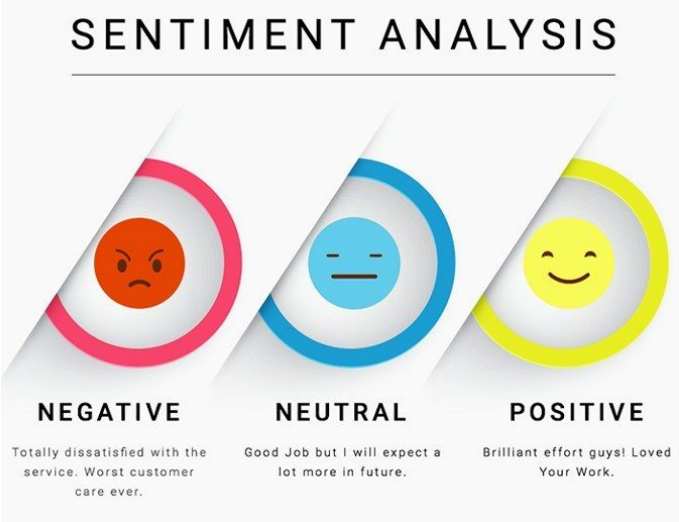
What is Sentiment Analysis?



- Find the underlying sentiments of a certain chunk of text
- Can process large bodies of text that we can't with the naked eye

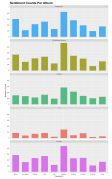
Sentiment Analysis Workflow

- **Tokenization**: Vectorizing the words in a sentence
- **Stop word filtering**: Removing unnecessary words such as articles and conjunctions
- **Negation handling**: Taking in account negative words
- **Stemming**: Converting a word to its root word
- **Classification**: Classifying sentiment by marking words in dictionary

Types of Sentiment Analysis

- Positive - Negative
  - Classifying words as either positive or negative
- Polarity Score
  - Giving each word a score from -10 to +10
- Sentiment Classification
  - Classifying each word as an actual sentiment

Our Methodology



Data Collection

- Accessed Genius's API using R's *genius* library
- Scraped lyrics from all 5 of Curry's studio releases at the time

Data Manipulation

- Broke down lyrics by each line
- Tokenized each line of the lyrics
- Removed stop words
- Stemmed all possible words
- Created a new dataframe with final data

Sentiment Analysis

- Used the nrc lexicon from the *tidytext* library
- Classified words into 10 sentiments by inner joining lyrics with lexicon: Anger, Anticipation, Disgust, Fear, Joy, Negative, Positive, Sadness, Surprise, Trust
- Obtained sentiment counts per song per album

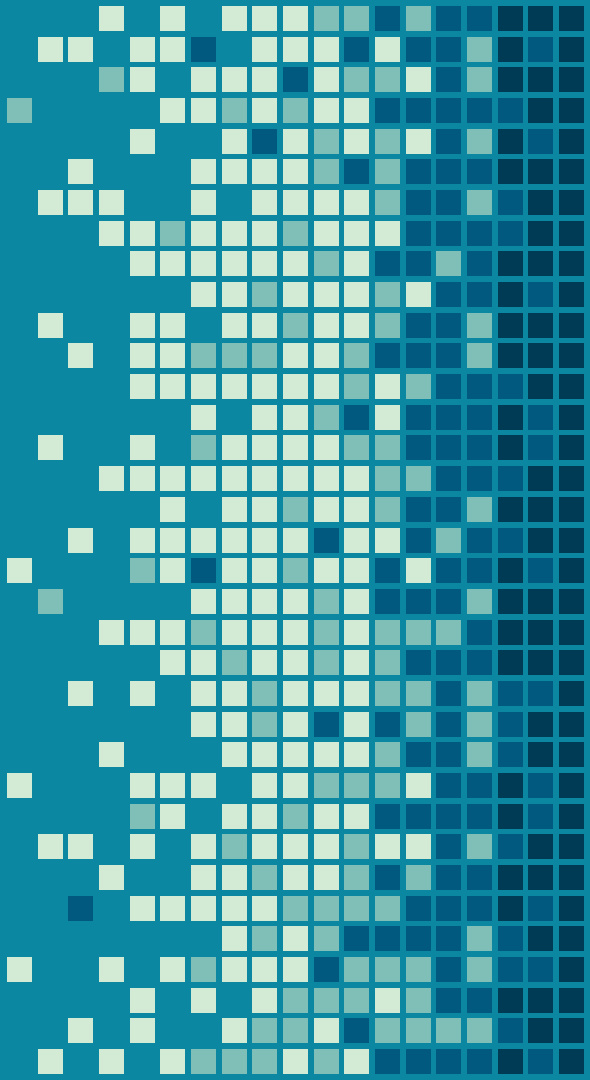
Visualizations/ EDA

- Made a wordcloud with the *wordcloud* library to explore the most commonly used words in his songs
- Plotted barplots in *ggplot* to gauge the sentiment spread in his lyrics

Who is Denzel Curry?

- 24-year old rapper from Carol City, Florida
- Gained popularity with water bottle flips
- Versatile artist!
  - Creates trap bangers alongside conscious boom-bap ballads
- Ripe for sentiment analysis

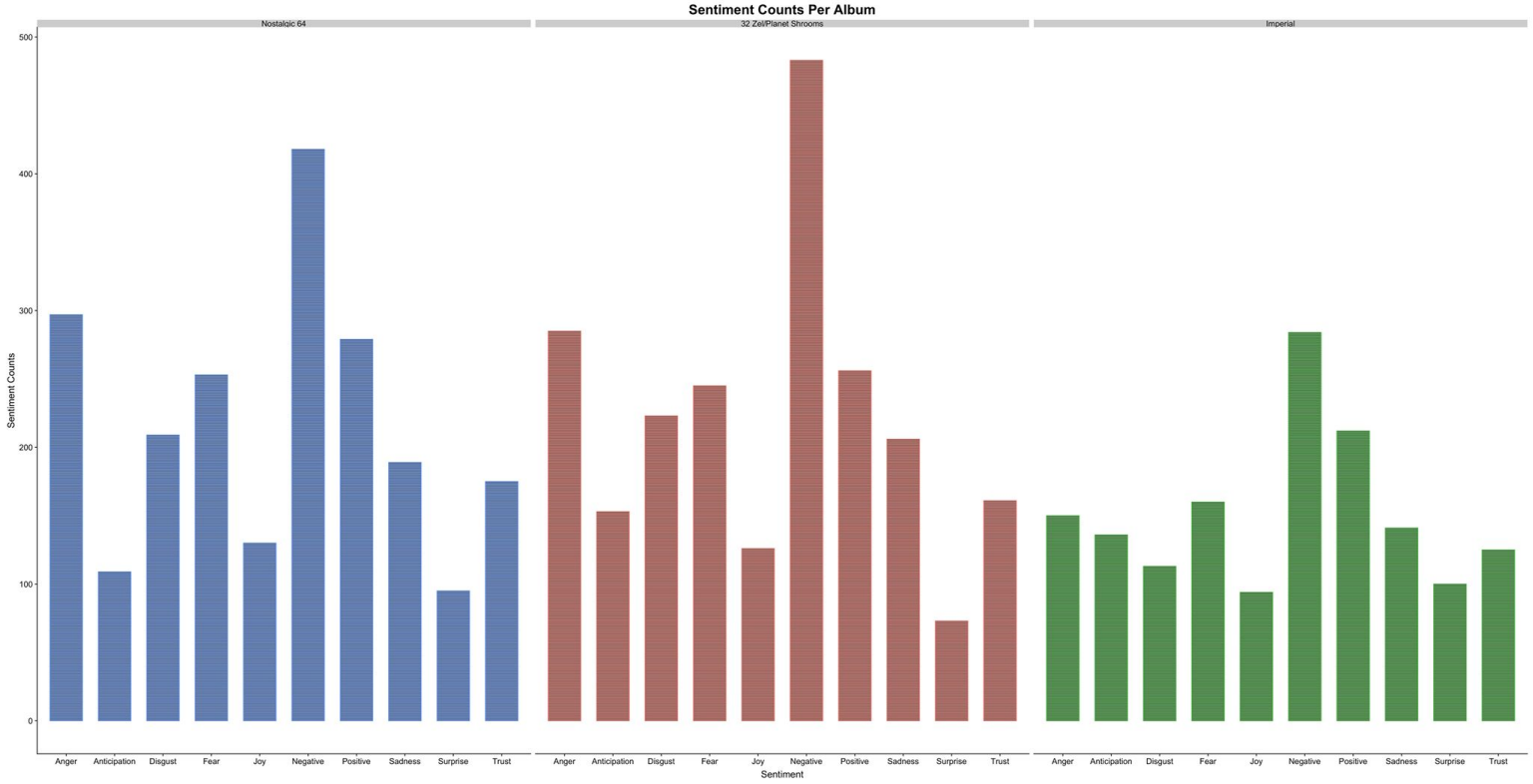
> *They only know Denzel Curry. But they really don't know Denzel!*

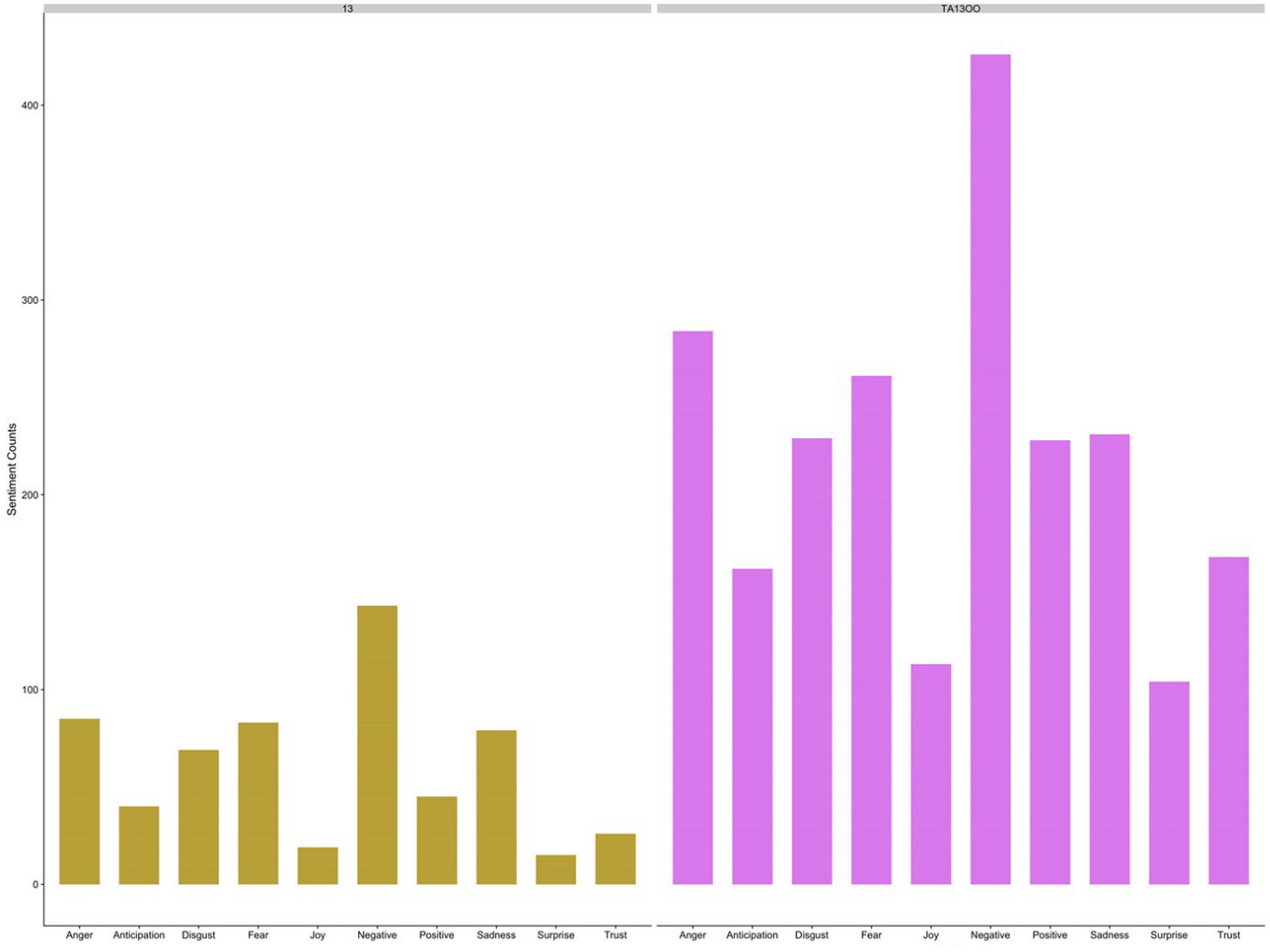


Findings

Wordcloud


like
niggas
bitch
shit
got
fuck
dont
get
aint
wanna
know
just
let
you
thats
make
want
cause
see
now
and
never
keep
yeah
life
time
take
float
feel
back
catch
put
say
man
smoke
black
ooh
ima
thinking
caught
knotty
fucking
truth
might
heard
lookin
long
live
kindly
with
watch
hate
things
every
youre
leave
hoo
wont
earth
drop
whole
doesnt
cut
gonna
gun
weed
times
south
damn
door
chief
narcotics
pussy
benz
wrong
fucked
yall
pain
set
zenith
come
look
late
window
its
right
young
can
curry
imma
nothing
til
boop
roll
who
shawty
head
zone
sure
mind
slide
start
then
even
hoes
big
knew
lord
ready
city
hell
bullet
fall
switch
shes
little
green
looking
game
girl
love
day
always
night
better
whats
eyes
tree
feeling
ever
need
turn
home
pop
stay
kill
end
lsd
play
super
serve
two
what
this
real
hit
another
told
cheese
soul
since
jit
main
fear
live
realize
not
pull
bitches
future
cash
came
lost
bands
new
give
run
full
sumo
gon
made
okay
good
tell
culo
daddy
around
murder
heartless
said
god
baby
done
fuckin
kids
boy
she
dead
till
three
that
denny
ass
bad
raincause
running
pockets
cuz
these
welcome
brother
vital
age
free
huh
mad
show
mane
lifes
out
grab
stick
send
bout
inside
body
envy
everything
lungs
bust
story
enemies
wait
ult
well
one
king
ice
hard
bruh
side
will
open
ultimate
tomorrows
the
hella
ball
florida
think
chick
dick
all
nah
threats
die
dark
crackers
finish
mean
brain
denzel
white
why
your
name
darkside
cascade
enough
when
cant
tryna
revenge
high
flow
kush
because
woo
void
money
way
prison
mine
gook
forever
zel
still
talk
living
call
world
mirror
lets
gotta
carol
talking
they
hear
people
thoughts
really
ride
war
cold
yuh
hold
face
gangsta

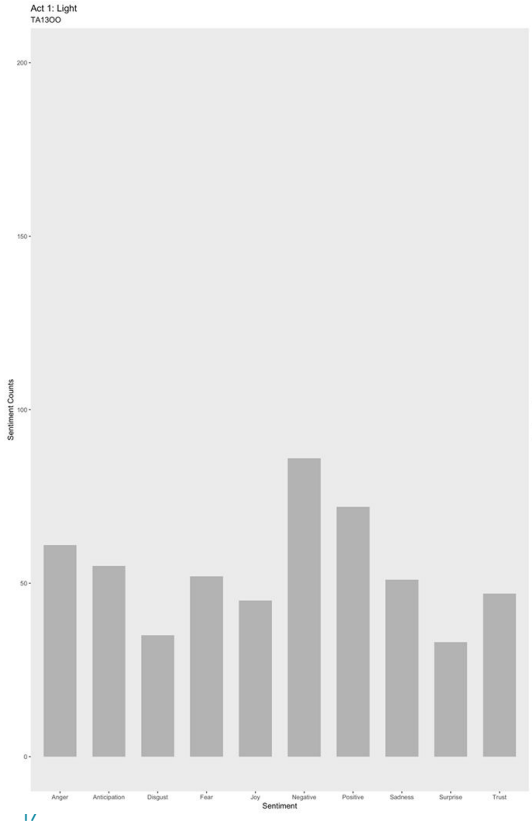

Sentiment Counts Per Album
Nostalgic 64
32 Zel/Planet Shrooms
Imperial
Sentiment Counts
0
100
200
300
400
500
Anger
Anticipation
Disgust
Fear
Joy
Negative
Positive
Sadness
Surprise
Trust
Sentiment


13
TA13OO
Sentiment Counts
0
100
200
300
400
Anger
Anticipation
Disgust
Fear
Joy
Negative
Positive
Sadness
Surprise
Trust

Zooming In: Analysis of “TA1300”

- Curry's 2018 album
- Metacritic score: 86/100
- Concept album; split and released over three days in three parts
  - Act 1: Light
  - Act 2: Gray
  - Act 3: Dark
- Split analysis by Acts

All Acts


Act 1: Light
TA13OO
Sentiment Counts
200
150
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50
0
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Anticipation
Disgust
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Surprise
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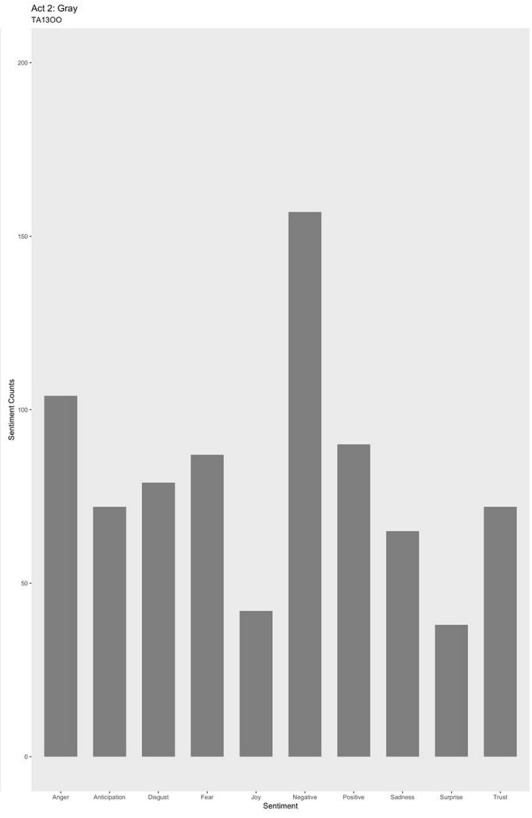
Sentiment


Act 2: Gray
TA13OO
Sentiment Counts
200
150
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50
0
Anger
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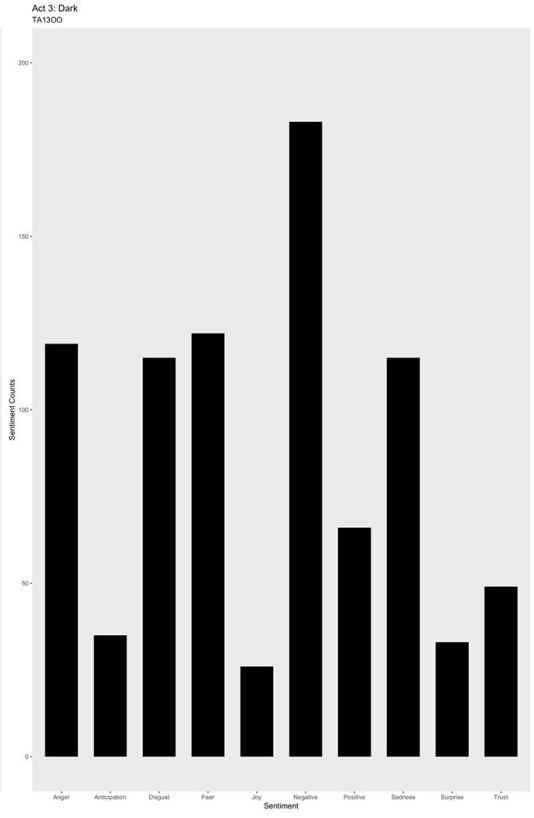
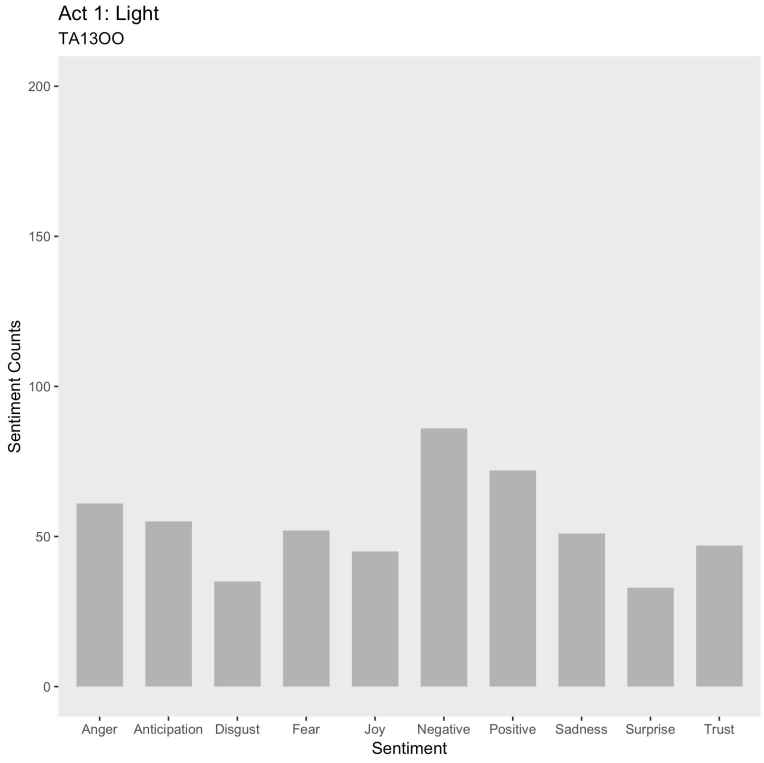

Act 3: Dark
TA13OO
Sentiment Counts
200
150
100
50
0
Anger
Anticipation
Disgust
Fear
Joy
Negative
Positive
Sadness
Surprise
Trust
Sentiment

Act 1: Light


Act 1: Light
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Sentiment Counts
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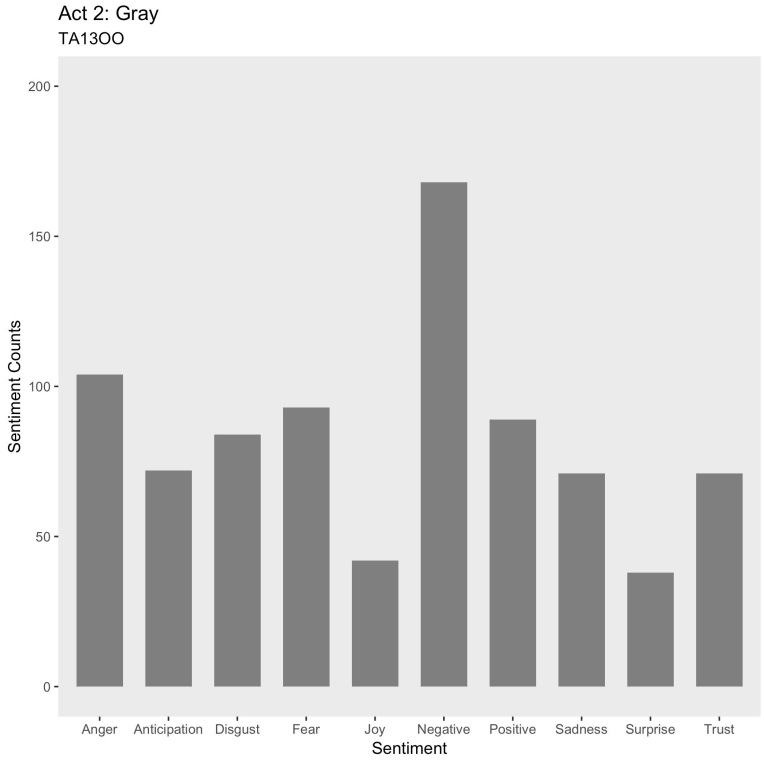
Act 2: Gray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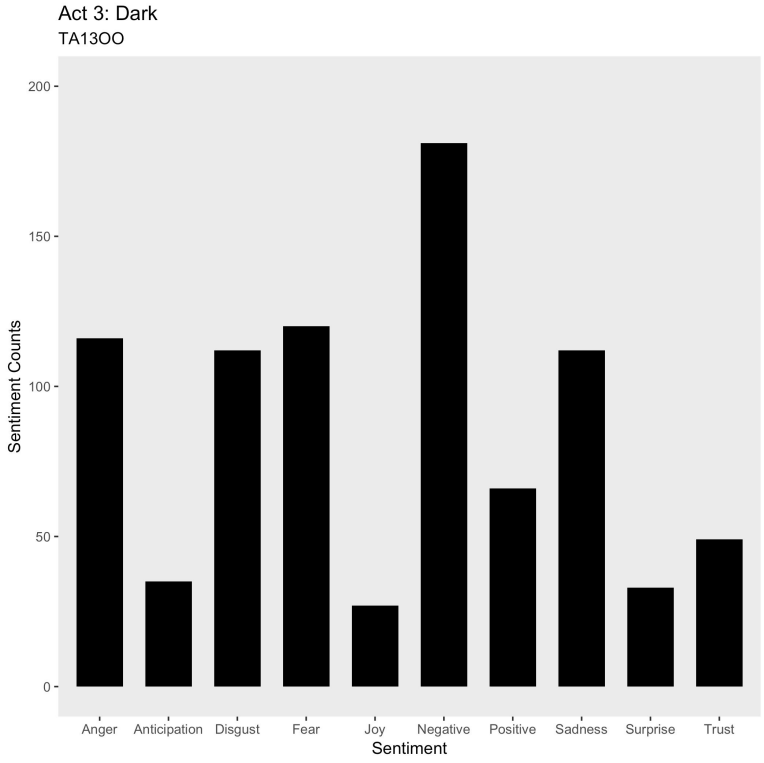
Act 3: Dark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Final Thoughts & Further Studies

Conclusions

- Sentiment analysis proved insightful!
- Data showed that lyrics informed album concept
- A good introduction into working with text mining

Further Analysis

- Expand past unigram sentiment analysis (n-grams)
- Train models on sentiment counts
- Create tool to find songs with similar sentiments

THANKS!

Any questions?