

Brandon Flowers: Sound, Scripture & Space

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18 December 2018

Executive summary

In this project, I wanted to visualize the music and lyrics of Brandon Flowers, frontman of the Killers. My goal was to apply data visualization to the music and the text. First, I looked at the actual sound, using Spotify's valence metric, a rough measure of how happy a song sounds. This visualization shows us which albums sound the most joyful. Second, I analyzed similarities between scriptural text and the lyrics of Brandon Flowers. I provide two visualizations showing phrases common to both the lyrics and to scripture. Third, I show on a map which US cities are mentioned in the song lyrics.

The final graphic shows all three of these visualizations, providing a new look into music.

Data background

I drew data from several sources, including Genius's song lyric database, Spotify, and also the csv version of the scriptures available available at <http://scriptures.nephi.org/>. The Spotify data was not available for all the Killers albums and instead included several live recordings, which I did not include in my analysis. Genius included all of the Killers and Brandon Flowers albums. This provided the framework for my second two visualizations.

```
library(spotifyr)
library(tidyverse)
library(ggthemes)
library(lubridate)
library(tidytext)
library(scales)
library(ggrepel)
library(geniusR)
library(sf)
library(scico)

killers <- get_artist_audio_features('the killers')
bflowers <- get_artist_audio_features('brandon flowers')
fullflowers <- bind_rows(killers, bflowers)
```

Data cleaning

Because I used several data sets, I will show this with each figure.

Individual figures

Figure 1: Visualizing Sound

For this figure, I filtered Spotify's data by album name and its valence score. I used a continuous color scale for a discrete set of values, because I liked the contrast it added, though it may seem misleading, since it does not show variance between the albums. However, the progression of color does match the progression of the album release dates. Everything is aligned and I used a minimal ink ratio for the lines on the figure.

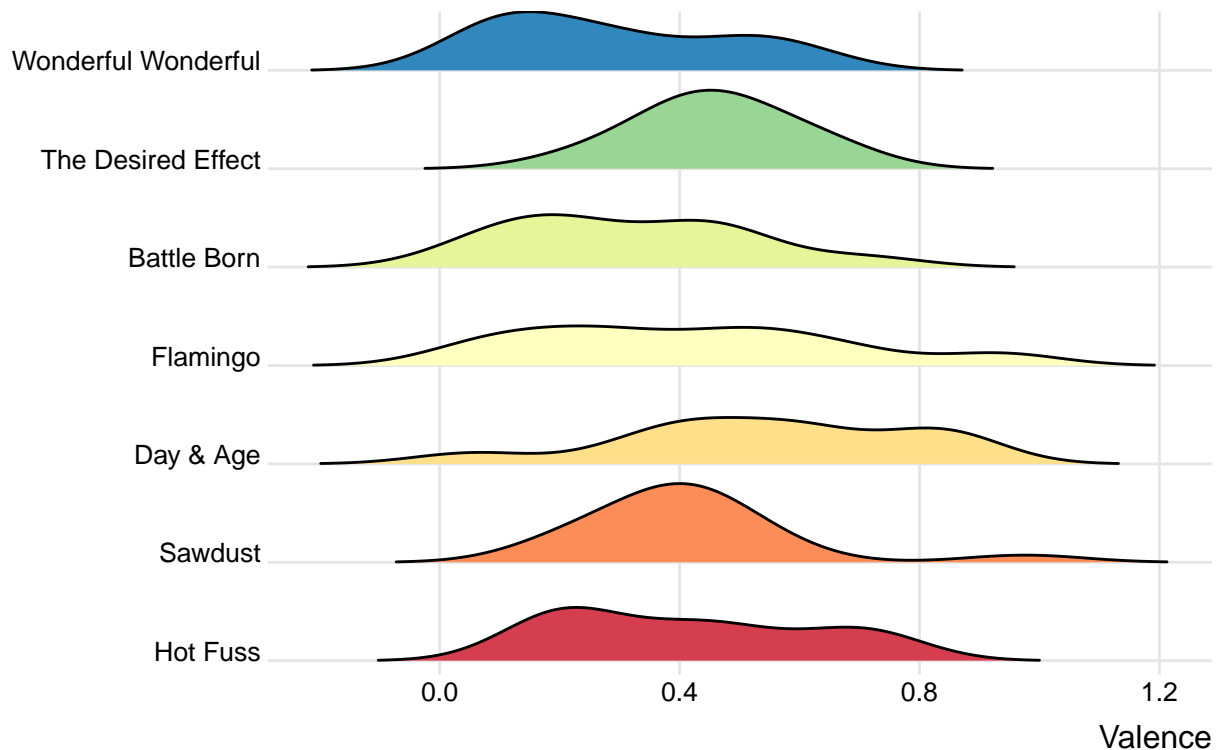
```
joy <- fullflowers %>%
  filter(album_name != "Live From The Royal Albert Hall",
         album_name != "Human (Remixes)", album_name != "Spaceman (Remixes)",
         album_name != "Day & Age (Bonus Tracks)", album_name != "Sams Town") %>%
  arrange(album_release_date) %>%
  group_by(album_name) %>%
  select(album_name, valence)

joy2 <- ggplot(joy, aes(x = valence, y = fct_inorder(album_name), fill = fct_inorder(album_name))) +
  geom_density_ridges(scale = .8, rel_min_height = 0.005) +
  scale_y_discrete(expand = c(0.01, 0)) +
  scale_x_continuous(expand = c(0.01, 0)) +
  theme_ridges(font_size = 12) +
  scale_fill_brewer(palette = "Spectral") +
  labs(title = "How Joyful Does the Music of Brandon Flowers Sound?",
       subtitle = "Based on Spotify's valence measure",
       y = NULL, x = "Valence") +
  guides(fill = FALSE)

joy2
```

How Joyful Does the Music of Brandon Flowers Sound?

Based on Spotify's valence measure



```
joy2print <- ggsave("output/joy2.pdf", joy2)
```

The story this figure shows is what many critics and fans say: Nothing is quite like Hot Fuss. The Desired Effect is the most unique of the set, similar to Sawdust, which has the b-sides and rare songs from the early Killers days. Flamingo, Flowers's other solo album, spans the widest range of emotions.

Figure Two: Visualizing Scripture in Song

I used the data set I had previously made for my code-through for simplicity's sake.

```
new_scripture_song <- read_csv("data/scripture_song3.csv") %>%  
  mutate(source = recode(source, "Old Testament" = "Old_Testament",  
    "New Testament" = "New_Testament",  
    "Pearl of Great Price" = "Pearl",  
    "Doctrine and Covenants" = "DandC",  
    "Book of Mormon" = "Mormon",  
    "Flowers" = "Flowers"))
```

To create my first visual, I found the bigrams in the New Testament and plotted the frequency of their appearance between the New Testament and Brandon Flowers's songs.

```
bigrams_frequency <- new_scripture_song %>%  
  unnest_tokens(bigram, text, token = "ngrams", n = 2) %>%  
  # Split the bigram column into two columns
```

```

separate(bigram, c("bigram1", "bigram2"), sep = " ") %>%
filter(!bigram1 %in% stop_words$word,
       !bigram2 %in% stop_words$word) %>%
# Put the two word columns back together
unite(bigram, bigram1, bigram2, sep = " ") %>%
group_by(source) %>%
count(bigram, sort = TRUE) %>%
left_join(new_scripture_song %>%
          group_by(source) %>%
          summarise(total = n())) %>%
mutate(freq = n/total)

bi_frequency_spread <- bigrams_frequency %>%
select(source, bigram, freq) %>%
spread(source, freq)

```

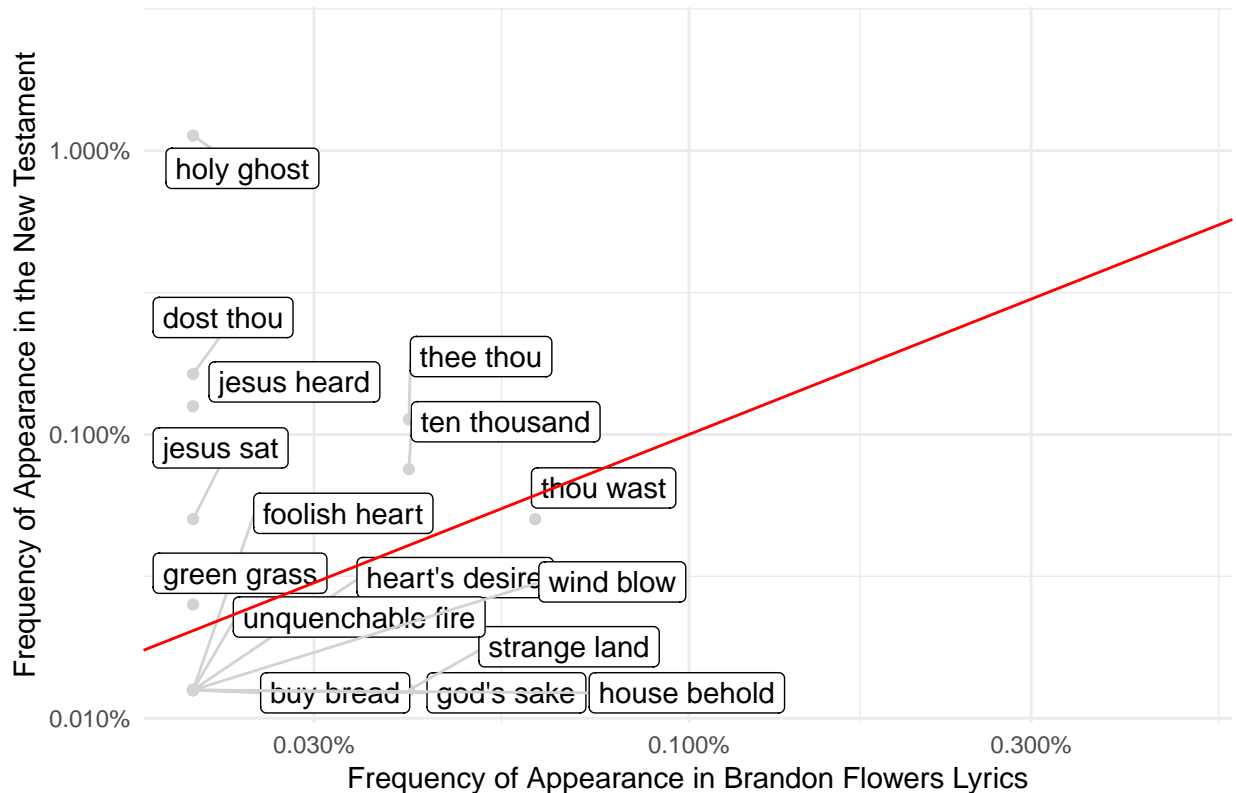
```

chart3 <- ggplot(bi_frequency_spread, aes(Flowers, New_Testament)) +
  geom_point(color = "light grey") +
  #geom_jitter(alpha = 0.1, size = 2.5, width = 0.25, height = 0.25) +
  geom_label_repel(aes(label = bigram), force = 50, seed = 1234, direction = "both",
                  segment.color = "light grey") +
  #geom_text(aes(label = bigram), check_overlap = FALSE, vjust = 1.5) +
scale_x_log10(labels = percent_format()) +
scale_y_log10(labels = percent_format()) +
  geom_abline(color = "red") +
  theme_minimal() +
  labs(title = "Bigrams in Both Brandon Flowers Lyrics and the New Testament",
       y = "Frequency of Appearance in the New Testament",
       x = "Frequency of Appearance in Brandon Flowers Lyrics")

```

chart3

Bigrams in Both Brandon Flowers Lyrics and the New Testament



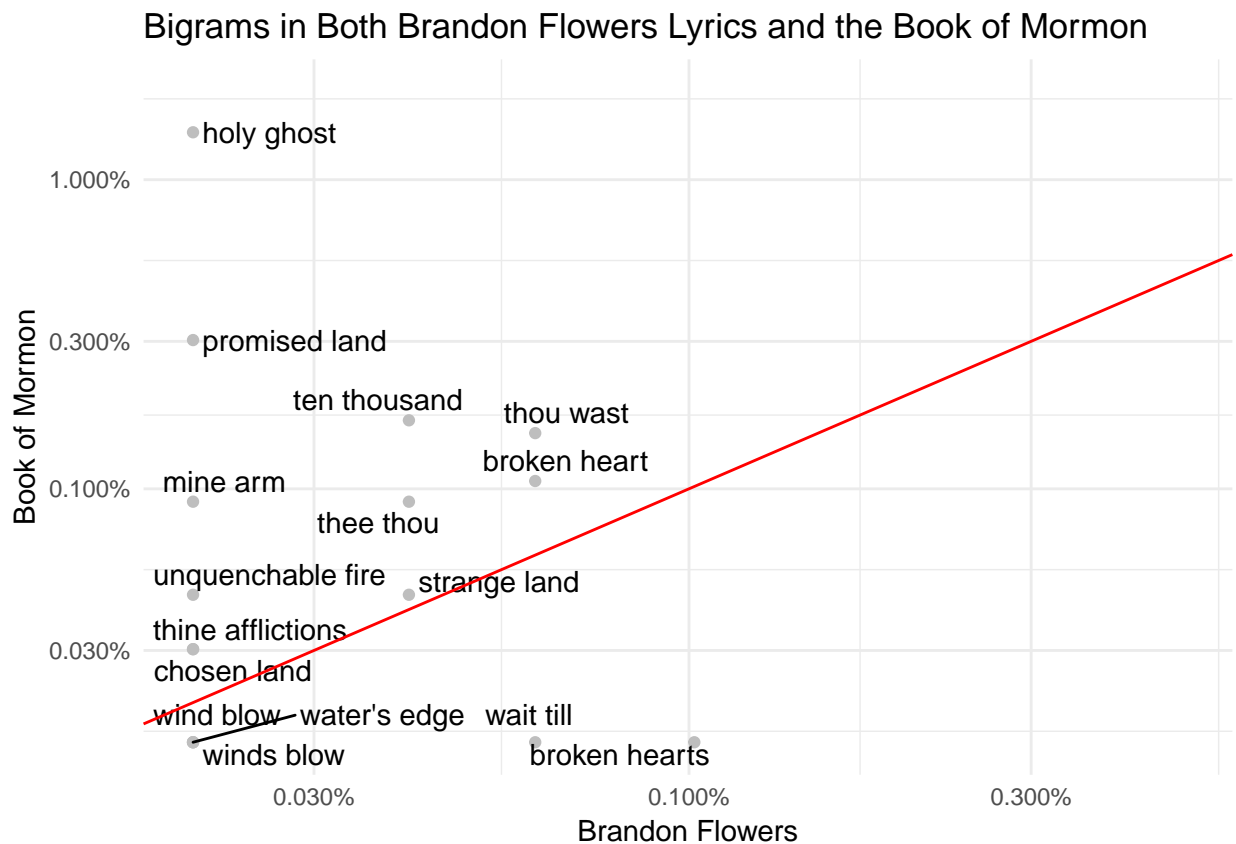
```
chart3print <- ggsave("output/chart3.png", chart3)
#Note: here and on the remaining images, I exported as png,
#because I made my final graphic in Indesign and it didn't like the pdfs.
```

This chart is more cluttered than I'd like, violating the principle of alignment, particularly at the bottom. I tried to apply a principle I learned from one of the listening assignments to start with grey. When I did that, it really cut down on the clutter. If I had more time here, I'd change the scales so that they are more understandable. It's not clear to me, or to the average reader, what 0.030% actually means. I'd also add annotations on what the red line means.

My favorite data point here is Brandon Flowers's usage of "holy ghost" and how he used "thou wast" more than the New Testament. Here, we see two phrases about Jesus hearing and sitting. These come from the song "The Call" in which passages from the book of Matthew are directly quoted at the beginning of the song.

```
chart2 <- ggplot(bi_frequency_spread, aes(Flowers, Mormon)) +
  geom_point(color = "grey") +
  #geom_jitter(alpha = 0.1, size = 2.5, width = 0.25, height = 0.25) +
  geom_text_repel(aes(label = bigram)) +
  #geom_text(aes(label = bigram), check_overlap = FALSE, vjust = 1.5) +
  scale_x_log10(labels = percent_format()) +
  scale_y_log10(labels = percent_format()) +
  geom_abline(color = "red") +
  theme_minimal() +
  labs(title = "Bigrams in Both Brandon Flowers Lyrics and the Book of Mormon",
       y = "Book of Mormon", x = "Brandon Flowers")
```

```
chart2
```



```
chart2print <- ggsave("output/chart2.png", chart2)
```

Again, I used the grey principle to bring contrast, and therefore, attention to the words. Most interesting findings: “promised land” and “strange land”.

Space in Song

This idea of promised lands and strange lands also carries over to places that are mentioned in the songs. I didn't try to plot “promised land” but I did use a map to plot the places that get the shout-outs.

The Killers have always spoken much of the origin city: Las Vegas. But it's not only Vegas that gets mentioned. Many of the songs are grounded in place.

I used a data set of place names to find where those names appeared in the songs. It wasn't a perfect match however.

```
#Obtained from https://simplemaps.com/data/us-cities
place_raw <- read_csv("data/uscitiesv1.4.csv")

place_city <- place_raw %>%
  select(city, lat, lng) %>%
  rename(place = city)
```

```

place_state <- place_raw %>%
  select(state_name, lat, lng) %>%
  rename(place = state_name)
place_county <- place_raw %>%
  select(county_name, lat, lng) %>%
  rename(place = county_name)

place <- bind_rows(place_city, place_county, place_state) %>%
  mutate_all(funs(tolower))

BF_only2 <- new_scripture_song %>%
  filter(source == "Flowers") %>%
  unnest_tokens(bigram, text, token = "ngrams", n = 2) %>%
  count(bigram, sort = TRUE)

BF_place2 <- BF_only2 %>%
  filter(bigram %in% place$place)
write_csv(BF_place2, path = "data_output/BF_place2.csv")

```

```

BF_only1 <- new_scripture_song %>%
  filter(source == "Flowers") %>%
  unnest_tokens(word, text) %>%
  count(word, sort = TRUE)

BF_place1 <- BF_only1 %>%
  filter(word %in% place$place) %>%
  anti_join(stop_words)
write_csv(BF_place1, path = "data_output/BF_place1.csv")

```

At this point, I had narrowed it to about 300 possible place names. Then I sorted out the actuals in Excel by hand and kept the n with each of them. Then I joined them with latitude and longitude.

```

final_place <- read_csv("data_output/BF_place_all.csv")

final_place_to_map <- final_place %>%
  drop_na() %>%
  st_as_sf(coords = c("long", "lat"), crs = 4326) %>%
  st_transform(26912) %>%
  mutate(long = st_coordinates(.)[,1],
         lat = st_coordinates(.)[,2])
#I used the place_raw to get the lat and long values in Excel.

```

I also wanted to put a lot of them in context, so I pulled the full lyric database of Brandon Flowers again.

```

albums <- tibble(
  artist = c(
    rep("Brandon Flowers", 2),
    rep("The Killers", 7)
  ),
  album = c(
    "The Desired Effect", "Flamingo",
    "Hot Fuss", "Sam's Town", "Sawdust", "Wonderful Wonderful",

```

```

      "Don't Waste Your Wishes", "Battle Born", "Day Age"
    ),
    year = c("2010", "2015", "2004", "2006", "2007", "2017", "2016", "2012", "2008")
  )
album_lyrics <- albums %>%
  mutate(tracks = map2(artist, album, genius_album))
lyrics <- album_lyrics %>%
  unnest(tracks) %>% # Expanding the lyrics
  arrange(desc(artist)) # Arranging by artist name
shot <- genius_lyrics(artist = "The Killers", song = "Shot at the Night", info = "all") %>%
  mutate(album = "Direct Hits",
         year = "2013")
just_another <- genius_lyrics(artist = "The Killers", song = "Just Another Girl", info = "all") %>%
  mutate(album = "Direct Hits",
         year = "2013")
all_lyrics <- bind_rows(shot, just_another, lyrics)

write_csv(all_lyrics, path = "data_output/all_lyrics.csv")

# https://www.census.gov/geo/maps-data/data/cbf/cbf_state.html
us_states <- st_read("data/cb_2017_us_state_20m/cb_2017_us_state_20m.shp",
                   stringsAsFactors = FALSE)

```

```

FALSE Reading layer `cb_2017_us_state_20m' from data source `/Users/katieolson/Documents/MPA Program/Fa
FALSE Simple feature collection with 52 features and 9 fields
FALSE geometry type:  MULTIPOLYGON
FALSE dimension:      XY
FALSE bbox:           xmin: -179.1743 ymin: 17.91377 xmax: 179.7739 ymax: 71.35256
FALSE epsg (SRID):    4269
FALSE proj4string:    +proj=longlat +datum=NAD83 +no_defs

```

```

states_48 <- us_states %>%
  filter(!(STUSPS %in% c("HI", "AK", "PR"))) %>%
  mutate(highlight = if_else(NAME %in% c("California", "Nevada", "Utah", "Texas", "Arizona",
                                         "North Dakota", "New York", "Tennessee", "Florida"), "Yes", "N
#I cannot make this stupid message disappear.

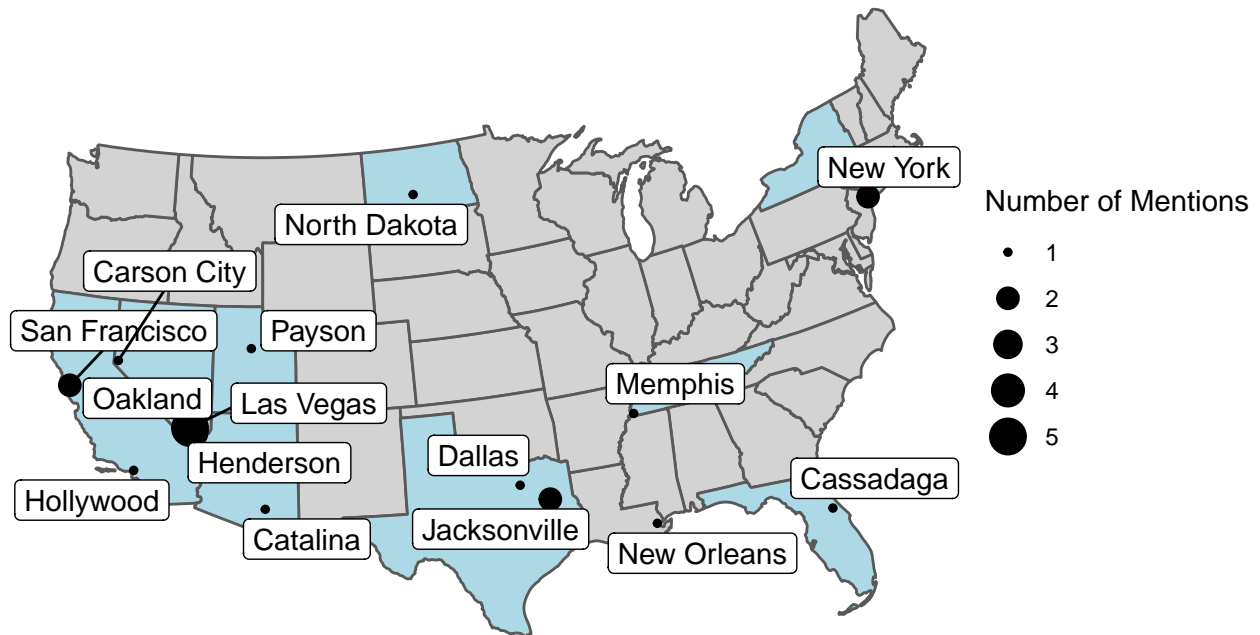
```

Then, I plotted the US mentions on a map, according to the number of times it was mentioned.

```

map1 <- ggplot() +
  geom_sf(data = states_48, aes(fill = highlight)) +
  scale_fill_manual(values = c("light grey", "light blue")) +
  geom_sf(data = final_place_to_map, aes(size = n), show.legend = "point") +
  geom_label_repel(data = final_place_to_map, aes(x = long, y = lat, label = place), seed = 1234) +
  coord_sf(crs = 26912, datum = NA) +
  scale_size(name = "Number of Mentions") +
  theme_void() +
  guides(fill = FALSE)
map1

```

```
map1print <- ggsave("output/map1.png", map1)
```

Naturally, Las Vegas is still the biggest player, obscuring Henderson, which has the second highest number of mentions at 3. My favorite part about this is that it shows the random mention of North Dakota on the Sawdust album. It's said, "We ended up in North Dakota, where everybody talks the same."

On this figure, I left off the titles, so that I could add them in Indesign. Again, I used the grey principle and the contrast with the blue to bring more attention to the states with mentions.

Final figure

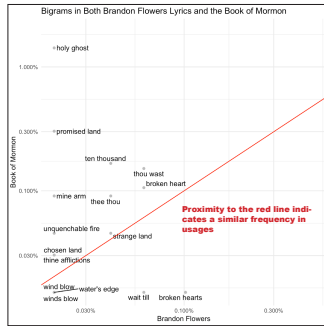
I used Indesign to create my final figure. I added several labels to the map to draw out the story more. My scripture charts lack contrast with the titles, and I wish I'd left them off in R, so I could add them more clearly in layout. I tried to use contrast between typefaces, though it needs to be upped more.

```
knitr::include_graphics("combined.pdf")
```

Sound, Scripture & Space

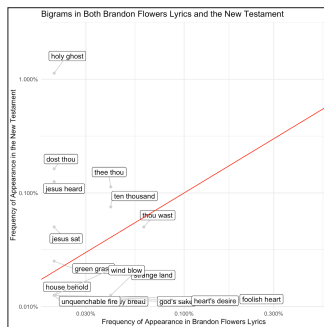
Visualizing the Music of Brandon Flowers

By Katie Olson



Song & Scripture: The Book of Mormon

Flowers and the Book of Mormon talk about a "strange land" with a very similar frequency. This makes sense with Flowers's experiences growing up in the middle of the desert, not unlike Nephi and his brothers.

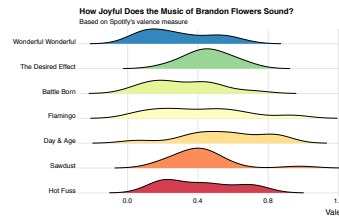


Song & Scripture: The New Testament

My favorite data point here is Brandon Flower's usage of "holy ghost" and how he used "thou wast" more than the New Testament. Here, we see two phrases about Jesus hearing and sitting. These come from the song "The Call" in which passages from the book of Matthew are directly quoted at the beginning of the song.

That They Might have Joy

The story this figure shows is what many critics and fans say: Nothing is quite like Hot Fuss. The Desired Effect is the most unique of the set, similar to Sawdust, which has the b-sides and rare songs from the early Killers days. Flamingo, Flowers's other solo album, spans the widest range of emotions.



What Places Get a Shout-Out?

This idea of promised lands and strange lands also carries over to places that are mentioned in the songs. The Killers have always spoken much of the origin city: Las Vegas. But it's not only Vegas that gets mentioned. Many of the songs are grounded in place. Naturally, Las Vegas is still the biggest player, obscuring Henderson, which has the second highest number of mentions at 3. My favorite part about this is that it shows the random mention of North Dakota on the Sawdust album. It's said, "We ended up in North Dakota."

