



Finding Familiarity Effects Within Billboard Top100

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| 21.01.2022



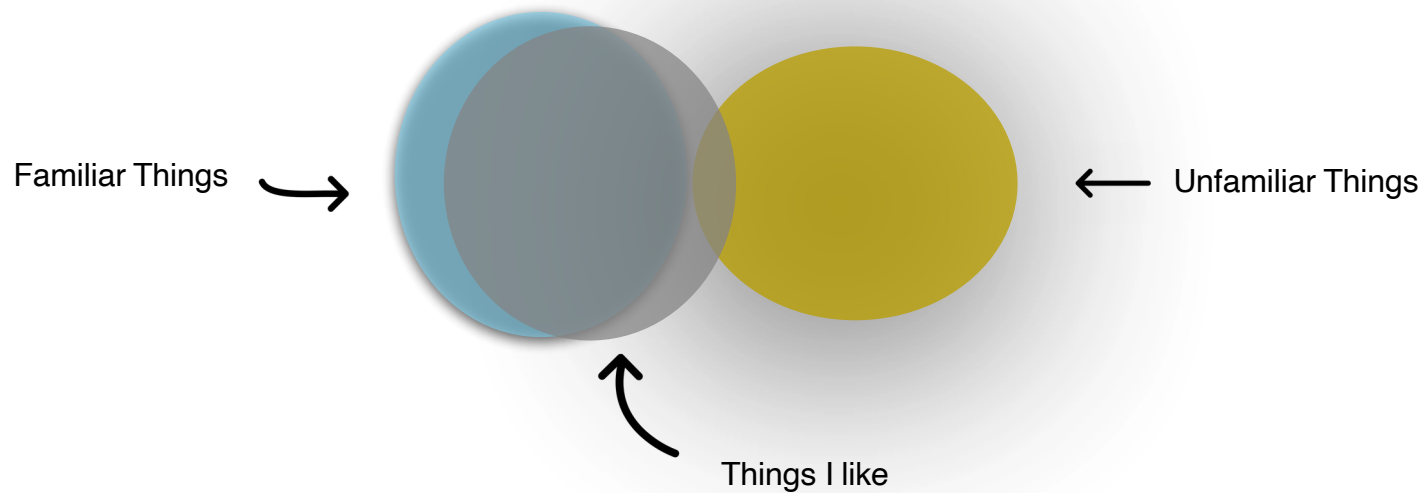
What are Familiarity Effects?

Exposure:

- Effects on various day to day experiences, say for example brand recognition [1] or relationships [2]
- A well studied[3] familiarity effect is Mere Exposure
- That's the one we're focussing on in our question

Mere-Exposure Effect:

- Psychologists have long observed that repeated, familiar exposure results in an increase in positive affect toward a stimulus.





Data Question:

Does the mere exposure effect influence song popularity?

Analysis of Frequency and Popularity Data in the billboard top100

Data: Billboard top 100 (1980-2021)

- Weekly data:
 - Rank of that song that week (\approx Popularity)
 - Total weeks that song stayed on board (\approx Exposure)

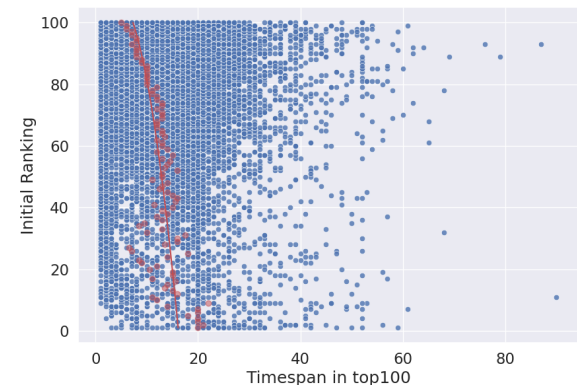
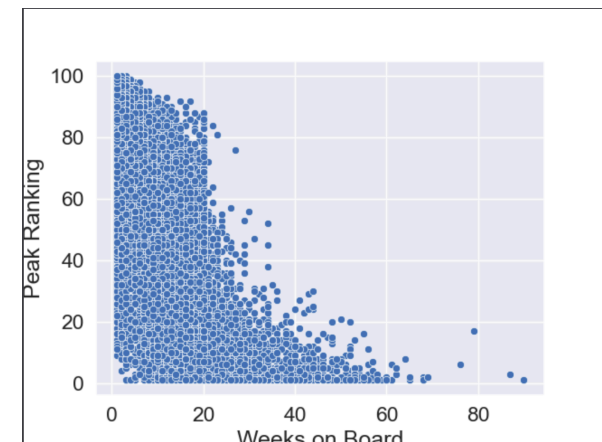
| | date | rank | song | artist | last-week | peak-rank | weeks-on-board |
|---|------------|------|---------------|-------------------------------|-----------|-----------|----------------|
| 0 | 2021-11-06 | 1 | Easy On Me | Adele | 1.0 | 1 | 3 |
| 1 | 2021-11-06 | 2 | Stay | The Kid LAROI & Justin Bieber | 2.0 | 1 | 16 |
| 2 | 2021-11-06 | 3 | Industry Baby | Lil Nas X & Jack Harlow | 3.0 | 1 | 14 |
| 3 | 2021-11-06 | 4 | Fancy Like | Walker Hayes | 4.0 | 3 | 19 |
| 4 | 2021-11-06 | 5 | Bad Habits | Ed Sheeran | 5.0 | 2 | 18 |

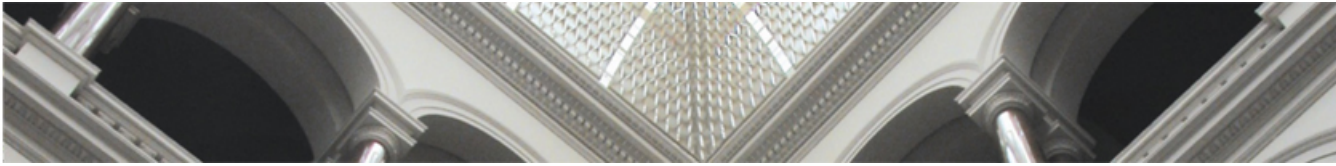
- Some more Transformations are needed to have those correspond exactly



Critique on Previous Visualizations

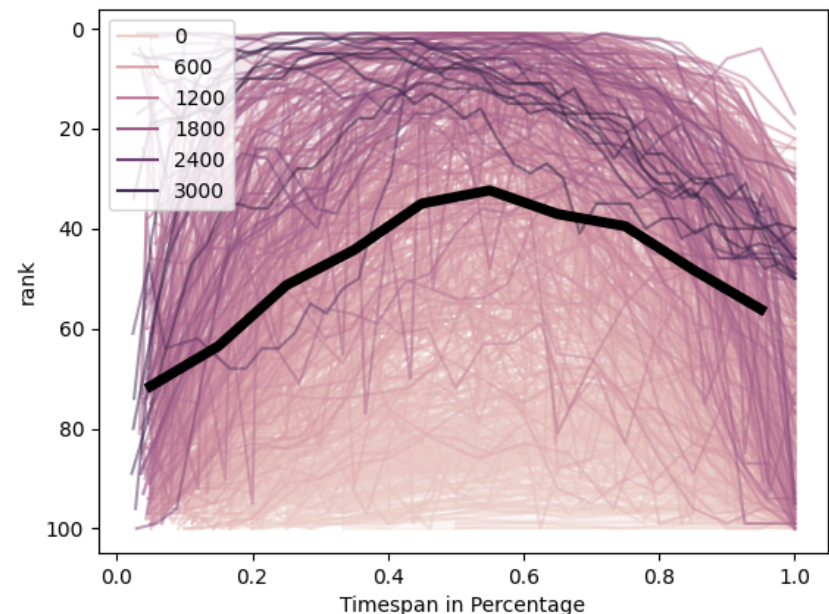
- Assumption: rank parameter \Rightarrow exposure
- Our Initial Result:
 - no sign of existence of anti mere exposure effect
 - interpretation: proof against anti mere exposure effect
- Reality: rank parameter \Rightarrow popularity
- Conclusion: Our first result can't be trusted \Rightarrow invalid

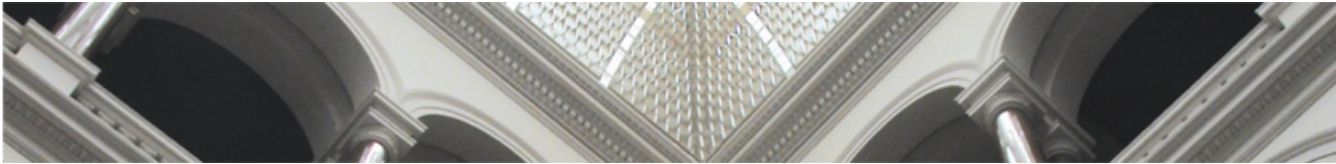




Visualisation 1: Average Song Behaviour

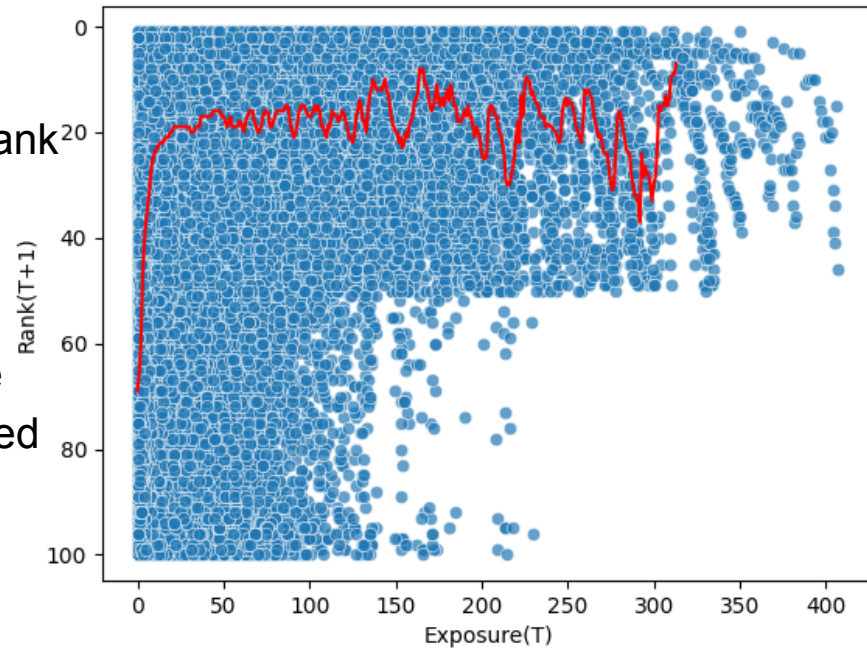
- Songs with different rank during the same timespan
- Increase in the average of the songs followed by a decline after half of their lifespan
- The darker the color, the longer the song on the board with the higher rank

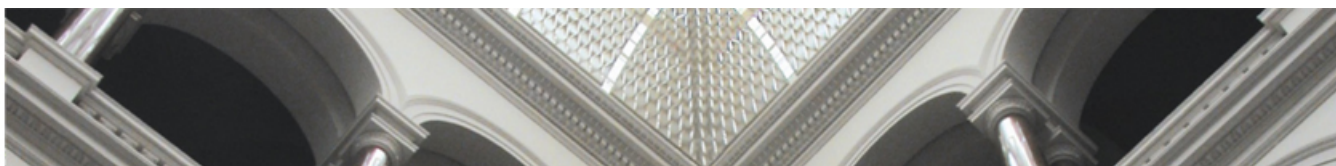




Visualisation 2: Exposure vs Popularity

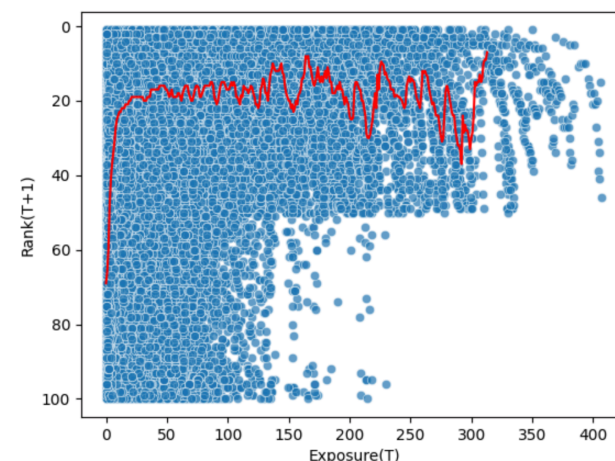
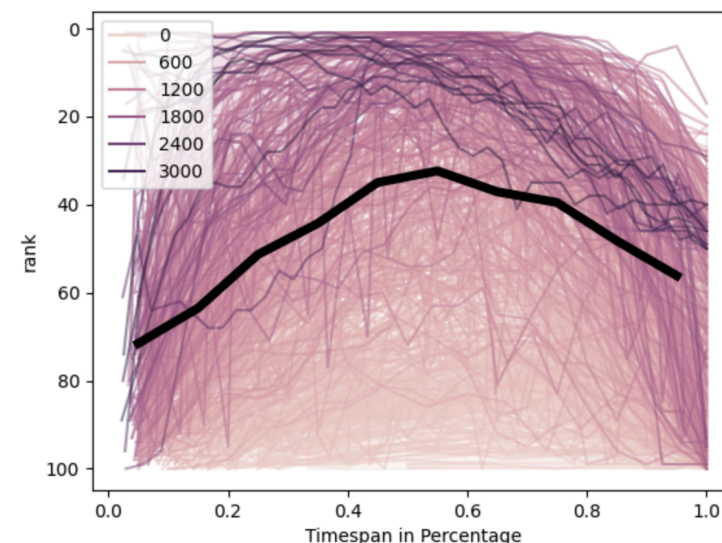
- Exposure at time compare to it's rank in the week afterwards
- Median(red line) of each exposure start to rise very quickly but followed by a curve





Discussion of The Progress

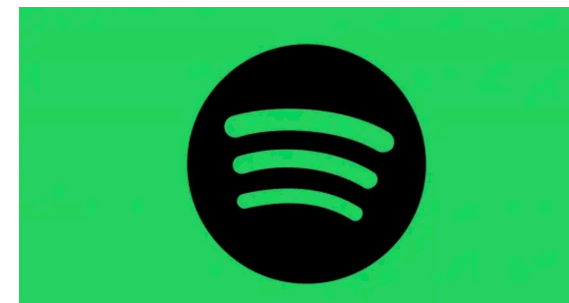
- 1st Graph:
 - Proof of anti-mere exposure effect more visible
 - Until %50 barrier Mere exposure effect visible
 - After the %50 barrier anti-mere exposure effect visible
- 2nd Graph:
 - After the 300 exposure unit standard deviation is high and there aren't much data => not analyzed
 - Mere exposure effect visible by the exponential increase
 - Anti-mere exposure effect is not clearly visible
 - Increase on liking stops after certain point

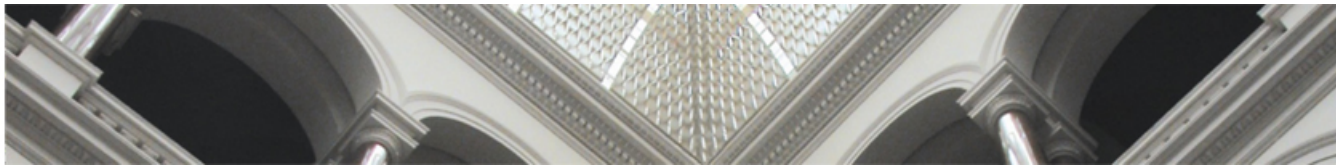




Pipeline 1:

- Data from 4 decades (1980-2021)
- Music Industry shifted from physical albums towards streaming platforms
 - => music is easily reachable
 - => more exposure
- Next Step:
 - Analyzing the effect of streaming on familiarity effects
- Assumption:
 - exposure increased
 - Familiarity effects more visible





Pipeline 2:

- **Type of stimulus** as a moderating factor for mere-exposure effect
- Our investigation till now belong to **all types** of music...
- Deep dive into **one specific** type of music: Rock
- Study the impact of mere-exposure effect on this type



Sources:

- [1] [The Billboard Top100 Dataset](#) - compiled / curated by Dhruvil Dave, Kaggle-Dataset master
- [2] Exposure and Affect: Overview and Meta-Analysis of Research. Robert F. Bornstein, 1989
- [3] [Mere Exposure Effect – How It Works, Examples And Tips](#) - Maxim Dsouza, 2021
- [4] [Proximity and the Mere Exposure Effect in Social Psychology](#) - Sevim Eyüpoğlu, 2018
- [5] [Sequence redundancy, rating dimensions, and the exposure effect](#) - Robert V. Kail and Harvey R. Freeman, Memory & Cognition, 1973