



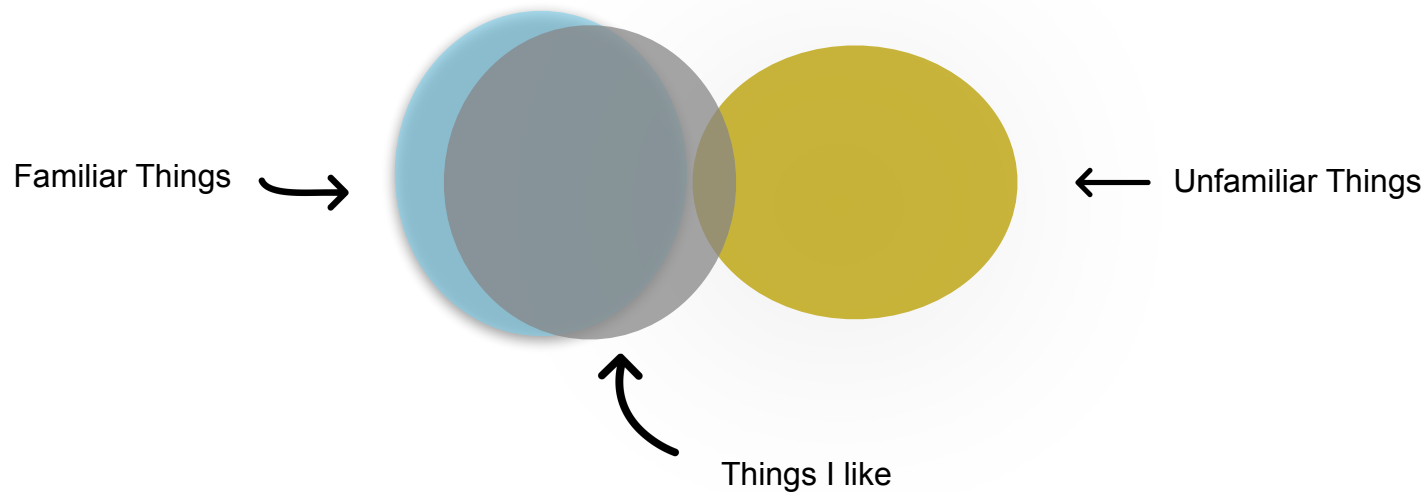
## Predicting Song Lifespan Within Billboard Top100

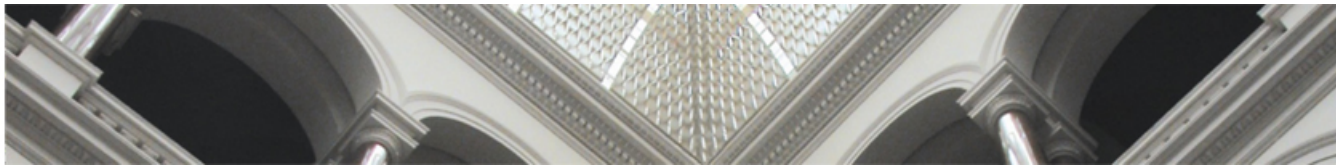
Burak Kian, Ravid Hausmann, Yasaman Fattahiamin | Data Science Praktikum WS21/22  
| 04.01.2022

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## Mere-Exposure Effect:

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



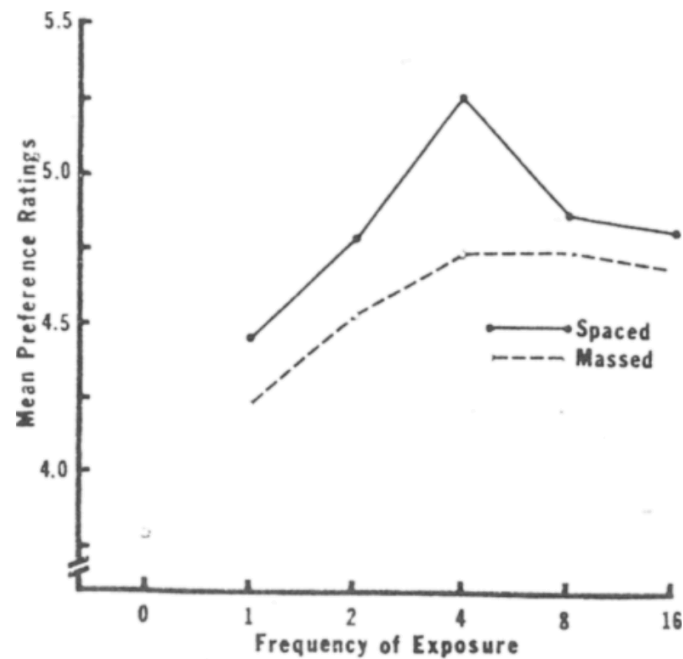


## Bornstein (1989): Overview and meta-analysis of research

### Moderating Factors:

- Type of stimulus
- **Number of presentation (how often the presentation is get liked most, when is it too much)**
- Duration of exposure (short = effective)
- Awareness (less conscious = more effective)

## Impact of repetition on exposure effect



Sequence redundancy and mere exposure effect. Robert Kail



## Data Question:

# Does the anti mere exposure effect influence song popularity?

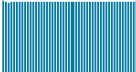

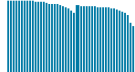
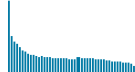
Analysis of Frequency and Popularity Data in the billboard top100



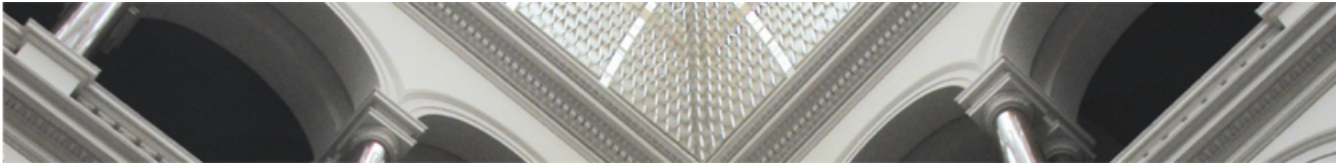
## Data: Billboard top 100 (1980-2021)

- Weekly data:
  - Rank of that song that week
  - Rank of that song last week
  - Peak rank of that song
  - Total weeks that song stayed on board

A collection of Billboard "The Hot 100" charts

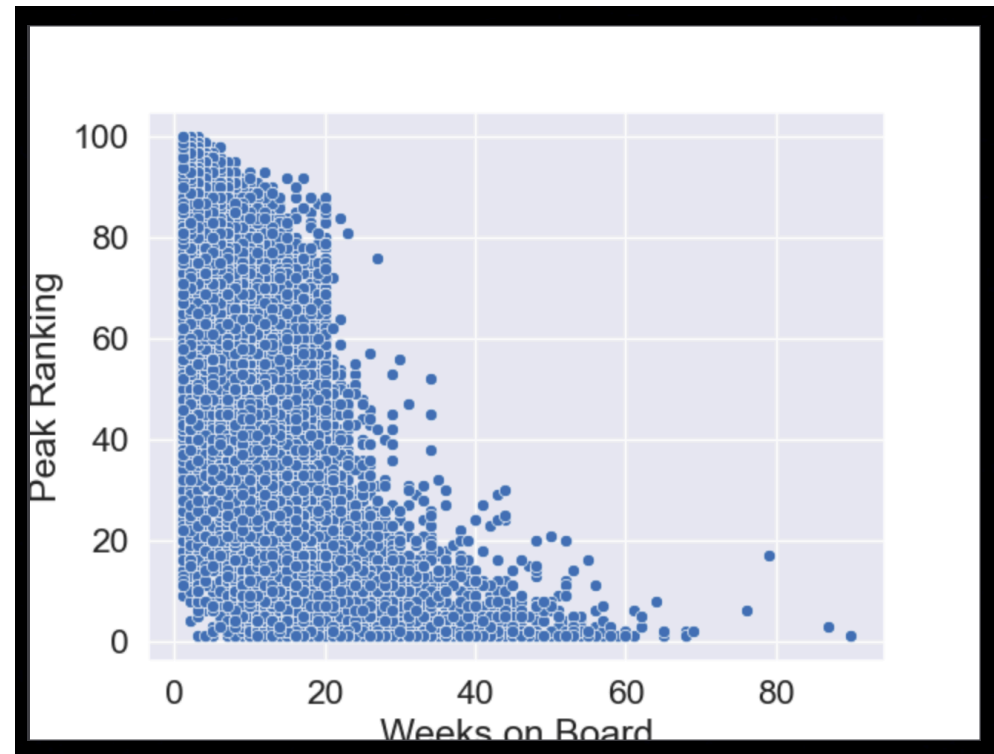
date	# rank	A song	A artist	# last-week	# peak-rank
Rank of song	Song title	Track Artist	Rank in previous week	Top rank achieved by the song	Number of weeks on board
		24620 unique values	10205 unique values		
2021-11-06	1	Easy On Me	Adele	1	1
2021-11-06	2	Stay	The Kid LAROI & Justin Bieber	2	1
2021-11-06	3	Industry Baby	Lil Nas X & Jack Harlow	3	1
2021-11-06	4	Fancy Like	Walker Hayes	4	3
2021-11-06	5	Bad Habits	Ed Sheeran	5	2
2021-11-06	6	Way 2 Sexy	Drake Featuring Future & Young Thug	6	1
2021-11-06	7	Shivers	Ed Sheeran	9	7
2021-11-06	8	Good 4 U	Olivia Rodrigo	7	1
2021-11-06	9	Need To Know	Doja Cat	11	9
2021-11-06	10	Levitating	Dua Lipa	8	2





## Visualisation 1: Peak Rank & Weeks on Billboard

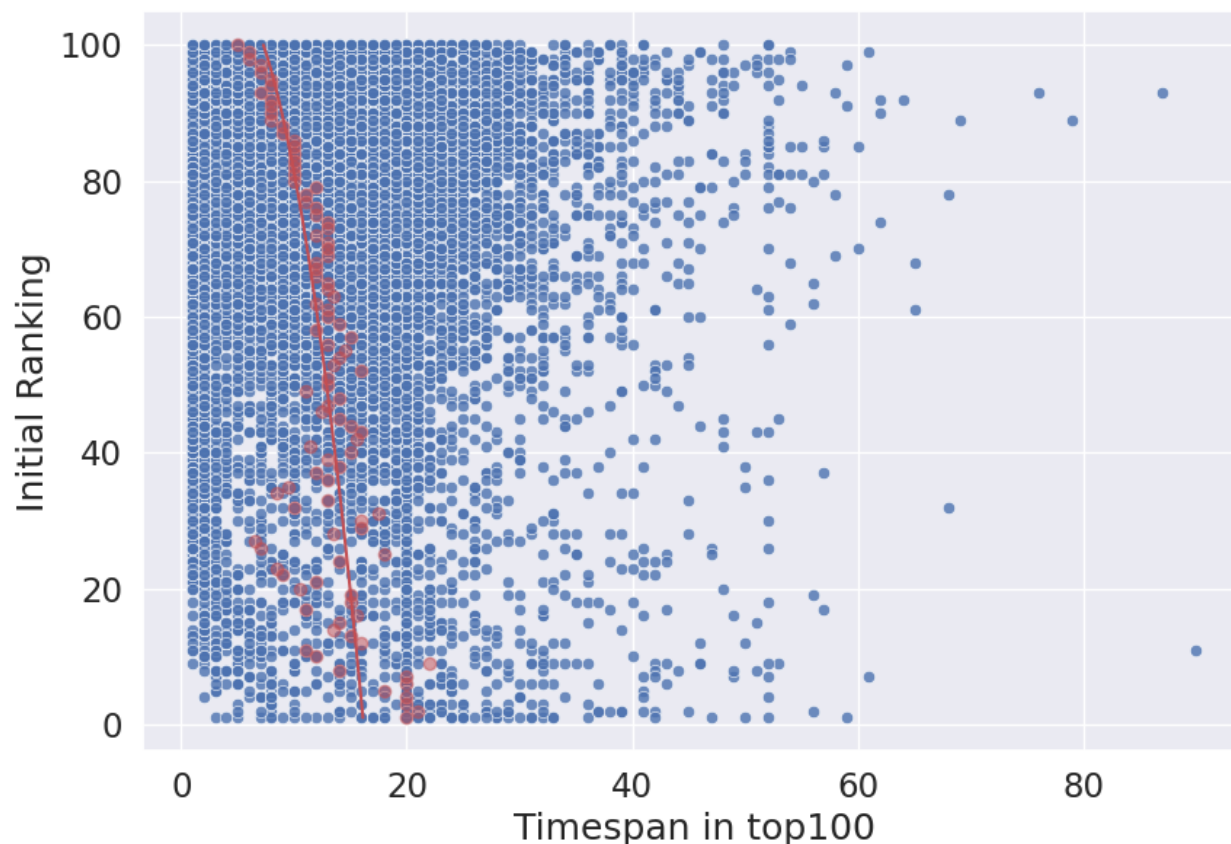
- Highest achieved rank correlated with weeks on board
- Blinding Lights:
  - Weeks on board :90
  - Peak Rank: 1





## Visualisation 2: Initial Rank & Weeks on Billboard

- Median timespan highest for highest ranking songs
- More variability on higher ranks
- More Songs start low than high







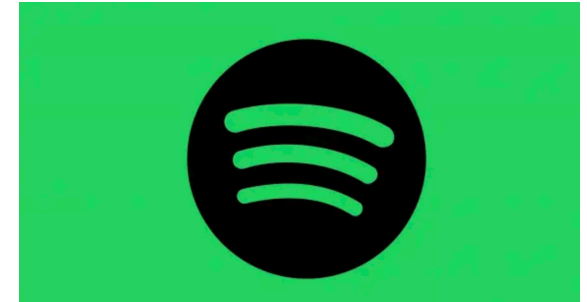
## Pipeline 1:

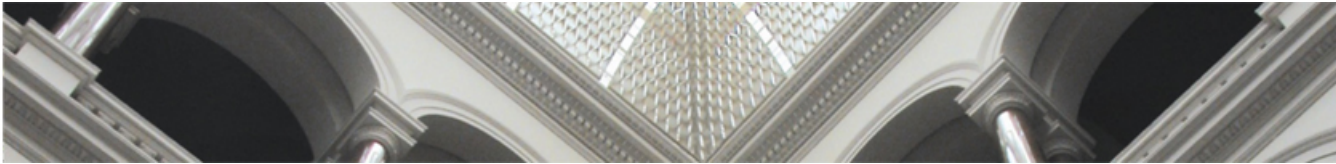
- Hypothesis not ruled out yet
- Single songs might still decline in popularity after exposure, but not enough to shape averages
- ReDo the analysis looking at single song trajectory
- Or...



## Pipeline 2:

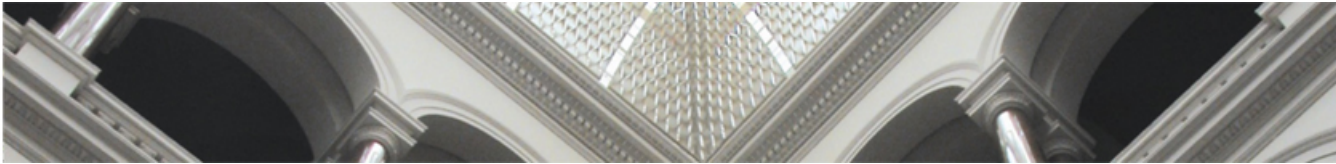
- Our data: from 1980-2021
- Analyzing the effect of digitalisation of music industry
- Streaming vs physical albums on music industry
- Billboard 100 listened more -> higher exposure





## Conclusion:

- Question inconclusive
- More in depth analysis needed



## References

- [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