Why Do I Like This Song?

And Other Important Questions

GREG STIFFLER
COMMUNITY COLLEGE OF BALTIMORE COUNTY
GSTIFFLER@CCBCMD.EDU
Can’t Get it Outta’ My Head

- What songs will you always remember?
- What songs give you chills or excite you?
  - Selection 1: 
  - Selection 2: 
  - Selection 3: 
  - Selection 4: 
  - Selection 5: 
  - Selection 6: 

♫
From an early age, form opinions on music and sound

- From as early as age 5, we can decipher changes in tempo, happy/sad excerpts by extension (study 9)
- Major chords typically evoke happiness, elation
- Minor chords typically evoke sadness, stoicism or sad feelings (study 9)
- Emotional associations established early in development (study 14)

Have you ever anticipated a refrain or hook in a song?

This comes from one place...
Check My Brain

- Important parts of the brain
  - Ventral striatum
  - Nucleus accumbens (NAc)
  - Ventral tegmental area (VTA)
  - Hippocampus
  - Amygdala
  - Insular cortex (insula)
  - Periaqueductal gray (PAG)/pedunculopontine tegmental nucleus (PPT)

- Pleasure center of the brain (study 13 and website)
  - Addiction center
If I Only Had a Brain...

- But I don’t even like that song! 🎵
  - Doesn’t matter 🎵
  - Only familiarity needed to stimulate amygdala, NAc (study 8) 🎵
  - Mere Exposure Effect 🎵
    - “...mere repetition of melodies is sufficient in increase affective responses to these melodies.”
  - Liked or unliked, familiarity activated parts of the brain associated with emotion 🎵

- Sex, Drugs, and Rock and Roll
  - Food, sex increase dopamine activity in NAc (study 13) 🎵
  - Midbrain and reward center responses to music mimic those of cocaine studies; NAc, VTA, and insula area 🎵
  - Research suggest stimulation of PAG and PPT areas, known for opioid receptors 🎵
  - Even anticipation can lead to dopamine release in the prefrontal cortex area, creating a type of auditory craving (study 7) 🎵
How can we exploit, hack, utilize these patterns?

**PASSIONATELY HATES A SONG**

**CAN'T STOP SINGING IN YOUR HEAD**

**WHAT ARE WE GOING TO DO TONIGHT, BRAIN?**

**SAME THING WE DO EVERY NIGHT. GET SONGS STUCK IN OUR HEAD WHILE BROWSING YOUTUBE.**
“Magic” beat tempo?

Multiple studies show that ‘preferred’ bpm for most people is around 120

- Moelants (2002): 120-125
- Fraisse (1982): 100
- Parncutt (1994): 100
- Levy (2011): 115-120
- Sykes finds African American popular music moderate tempo 93-138 bpm
- Zeiner-Henriksen finds club (EDM) 120-135 (all study 3)
What Does the Math Say?

- 2011 study at University of Minas
  - Data mined from Billboard top 100 and 200, and Million Song Database
  - From 1940-2010, average tempo 117-122 bpm, fluctuation of 5 bpm (study 12)
- 2010 Rutgers analysis
  - Looking at 50 years of American pop songs (approx. 4200), average bpm 119.8 (study 11)
- Some songs around 120 bpm
Note to Self

- Chords help frame the song, provide theme or direction, create harmony
  - Major chords evoke happy or brighter feelings
    - D Major
    - C Major
  - Minor chords evoke somber or sad feelings (Kate and Dave)
    - Minor
  - Various chords and keys are popular in music (Hooktheory.com)
Three (or Four) Chord Pony

- Some chord progressions are more popular due to harmony
  - Sutcliffe found I – IV - V progression to be popular in modern music (study 6)
- 4 Chord progression
  - I – V – iv – IV
  - Often C – G – am – F in key of C (hooktheory.com)
  - Often chosen because they harmonize so well
With such a popular setup, patterns will emerge.

Chord progressions cannot be copyrighted, melodies sometimes (Dave, AskAudio.com)

Katy Perry/Ke$ha

Katy Perry 2010
Ke$ha 2010
Mashup (DJPlaceboing)

If it works...
Straight Outta’ Sweden

- Popular music today either has origins from American R&B, or Europop
- Max Martin and Lukasz Gottwald (Dr Luke)
  - More than 30 top 10 hits between them since 2004
  - Swedish writers supplied ¼ of all hits from Billboard top 100 in 2014
- Swedish pop influence came from ABBA
  - “Superficially happy” sounding
  - Ear candy: harmonies, countermelodies, synthetic sounds
  - Influenced Martin to combine beat-driven music (clubs) with pop
  - All about the chorus
  - Melodies match beat, not meant to be complex
  - Beat above all
  - “A great pop song should be interesting, in some way….as long as it isn’t boring”
Ain’t Nuthin but a Swede Thang

- Found success with “The Sign”, then wrote for Backstreet Boys
- Studio Cheiron
  - Meld four bars of a dance beat (kick drum, hand clap, and snare) made so close they sound like one sound, pleases ears
- Gave Britney “Hit Me Baby”, originally for TLC
- Made Kelly Clarkson
- Influenced Stargate who wrote for Rihanna
- Industrialized “Track and Hook” method, vs melody and lyrics
  - Factory style
  - 1) make tracks 2) get suggestions for melody/lyrics 3) pick best 4) profit
  - Like “writing a TV show”
  - Get hook FAST, then Vamp, progresses in 3-4 chord patterns with little variation
All I Do is Win

- Producer-driven creation breeds familiarity
- Looking for Patterns
- Producer most (or very) important
  - Owns topliner (writes song over premade beat)
  - Gets big piece of publishing
  - Runs session (and pays for it)
- Ryan Tedder
  - Produced for Beyoncé’ and Kelly Clarkson
- Similar songs
  - Already Gone
  - Halo
  - Same?
For the Love of Money

- Money drives all
- 90% of the revenue in music business comes from 10% of the songs
- 13 million song available for purchase in 2008
  - 52,000 made up 80% of revenue
  - 10 million didn’t sell one track (all seabrook)
- During 1998 2% of albums sold more than 500,000; 10% of all titles broke even
- Requires a new look at selling songs
- Create stars, get teams to write surefire hits
What Does This Give Us?

- Songs are louder, more condensed
- Auditory “junk food” (Seabrook)
- Analysis of 500,000 songs in UK
  - Less ‘happy’, and male singers
  - Successful songs ‘happier’, more ‘danceable’
  - Successful songs relatively rare (study 5)
- 2012 study of songs from 1955-2010
  - Songs get louder, more compressed
  - “Simplier pitch sequences”
  - Less timbral variety (study 2)
Conclusion

- Pop does follow trends
- Based on science and what people react to
- Pop stars often used and dumped, built up
- Less variety among certain genres, but more variety in general for listening
- Your thoughts?


www.knowyourmeme.com/memes/scumbag-brain