Abstract

Introduction

* Research question
* Hypothesis
* Literature that motivates research

Melodies of major and minor mode will be paired with lyrics with either a more positive or negative sentiment. Earlier experiments showed that music in major mode evoke a positive emotional response while music in minor mode evokes a negative response, based on self-report on a valence scale. A functional MRI will be used to measure the blood oxygen level-dependent signal

The hypothesis is that the blood oxygen level-dependent signal in the pleasure network is enhanced when the valence of the lyrics is matched with melodies of corresponding valence.

This will be research by participants listening to music while getting a fMRI scan, further the participants will self-report on their emotional response. The functional MRI is used to measure the BOLD signal in the pleasure network so the signal can be compared when listening to matched and mismatched valence. The self-report is used to control if the songs we expect to be experienced with higher or lower valence is actually experienced like that.

Re decoding emotions?????

* Re decoding emotions from brain activity (which you haven't proposed but might be an interesting direction):

<https://academic.oup.com/cercor/article/31/5/2549/6046263>

Picking songs

* Re your stimuli, I would look to the following papers for methods of decoding emotions from song music & lyrics (separately):

<https://www.sciencedirect.com/science/article/abs/pii/S0010027721004339>

<https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=8925463>

Many of these papers point towards existing song banks: I would propose that you use an existing bank of songs that has already been validated rather than reinventing the wheel yourself

Methods

* Ethics
  + Consent form
* Pilot study (Cog com exam)

Participants

* + 33 participants, 66.67% female, age range 15-52, mean age 22.45 years (sd=5.97)

Material

* + Indie pop, mean tempo 100.5 BPM (sd=2.67), mean duration 1, 4 minutes (sd=6.22)
  + Key and type were the predictor variables, measured outcome variable were valence (self report)

Procedure

* + Presented with consent form, 8 sound clips, after each clip they reportet on the valence of the music piece on a scale from -5 (negative) to +5 (positive) hwo they should use the scale were throutly explained

Analysis

* + Valence ~ key +(1|ID)
  + Valence ~ key+type + (1|ID)
  + Valence ~ key\*type + (1|ID)
  + Model 2 and 3 were compared with ANOVA
  + Chart, line chart

    Description automatically generated

Results

* + Model 1, significant result
  + Model 2, significant result
  + Model 3, interactive effect not significant
  + ANOVA showed model 2 to be better in both AIC and BIC

Discussion

* + Music in major mode evoke a more positive emotional response then music in minor mode
  + Lyrics did not work as an intensifier on this effect, interactive effect, but a significant difference were found in the lyrical pieces compared to the instrumental pieces. Overall lyrical music evokes a more positive emotional response disregarded of the key of the piece which mean lyric have a additive effect on valence
    - Due to preference for sad music
    - Mirror neuron systems, representations of the singer an their emotional state
    - Therefore, it makes sense to see if it is the sentiment of the lyric that control this effect or if the sentiment will not change this
    - Further a mismatch between sentiment of lyric and valence/key would be expected to give a less pleasant brain activation response then when the lyric and key match
* Experimental design
* Sampling plan
* Analysis plan