



Predicting Pleasurable Moments in Music

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SUMMARY

The present project aims to use two hypothesised underlying mechanisms of emotional responses to music—brain stem reflexes and musical expectancy—as predictors of aesthetic experiences, by focusing on chills as indicators of such experiences. Current evidence suggests individual associations between brain stem reflexes, musical expectancy, chills, affective response, and aesthetic response, but there remain some missing links to theories advanced in the early days of the empirical aesthetics of music. Recent tools, such as music information retrieval or probabilistic models of expectation, have made the investigation of these missing links possible. The proposed research seeks to use these tools to gather information about the specific timing of chills in music, to understand how consistent chills responses are developed over time, to use acoustic and structural properties to predict and manipulate pleasurable moments in music, and to tease apart the effects of schematic and veridical expectancy on the aesthetic response to music.

APPROACH

The project will combine computational and behavioural methods to investigate the causal influence of acoustic and structural features of music on the occurrence of chills.

RESEARCH PLAN

Online survey study (in progress)

- Collect timestamps of chills in music of all genres
- Check overlap between chills and pleasurable moments

Longitudinal study

- Assign unfamiliar songs from dataset to participants
- Control for stylistic preference
- Check consistency of timestamps across participants
- Look for effects of exposure and/or habituation

Modelling study

- Extract acoustic and structural features from music
- Acoustic: loudness, dissonance, etc.
- Structural: melodic, harmonic, and temporal expectancy
- Train model to predict timestamps from these features

Lab study

- Validate model predictions on measured chills
- Manipulate features to establish causal relationship
- Assess modulating effect of familiarity

Lab study

- Systematically manipulate expectations in familiar music
- Compare effects of schematic and veridical expectancy