Exploring Emotion Perception in Modally Ambiguous Music Through Cluster Analysis

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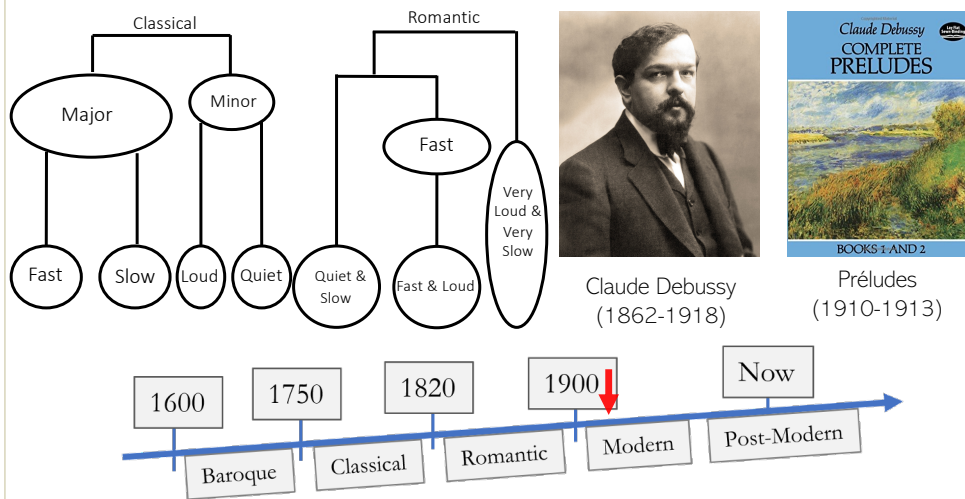
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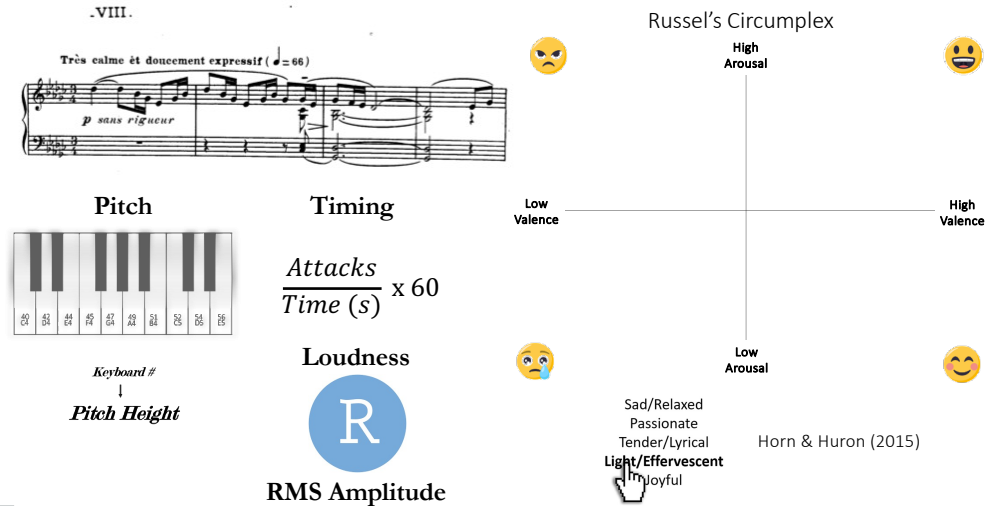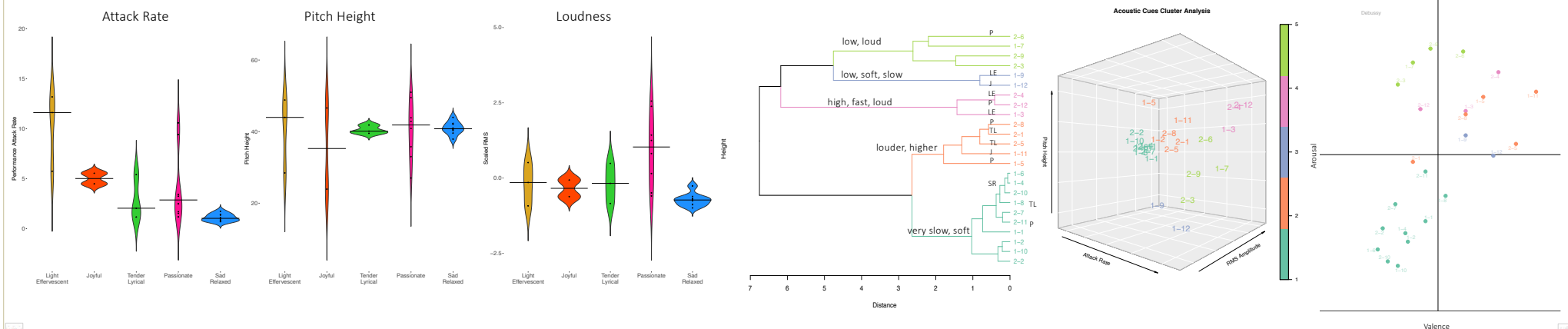[2] School of the Arts, McMaster University
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Introduction

Classical
- Major
  - Fast
  - Slow
- Minor
  - Loud
  - Quiet

Romantic
- Fast
  - Quiet & Slow
  - Fast & Loud
- Very Loud & Very Slow

Claude Debussy (1862-1918)

Claude Debussy COMPLETE PRELUDES BOOKS 1 AND 2
Préludes (1910-1913)

1600 — 1750 — 1820 — 1900 — Now

Baroque — Classical — Romantic — Modern — Post-Modern

Methods

.VIII.

Très calme et doucement expressif (♩= 66)
p sans rigueur

Pitch

Keyboard #
↓
Pitch Height

Timing

$$\frac{Attacks}{Time\ (s)} \times 60$$

Loudness

R

RMS Amplitude

Russel's Circumplex

High Arousal

Low Valence — High Valence

Low Arousal

Sad/Relaxed
Passionate
Tender/Lyrical
Light/Effervescent
Joyful

Horn & Huron (2015)

Results

Attack Rate — Light Effervescent, Joyful, Tender Lyrical, Passionate, Sad Relaxed

Pitch Height — Light Effervescent, Joyful, Tender Lyrical, Passionate, Sad Relaxed

Loudness — Light Effervescent, Joyful, Tender Lyrical, Passionate, Sad Relaxed

Acoustic Cues Cluster Analysis

low, loud
low, soft, slow
high, fast, loud
louder, higher
very slow, soft

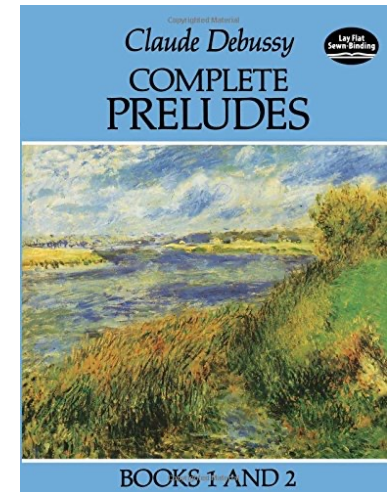Debussy

Acknowledgments

Summary

- Participants categorized most pieces as being "Sad/Relaxed" or "Passionate", consistent with the finding that mode's connection with other acoustic cues changed over time (Horn & Huron, 2015)
- Majority of Debussy's preludes fall in the negative valence space of the circumplex, with many of them being low in arousal
- Cluster analysis shows distinct groupings in acoustic structure, which is reflected in the emotion ratings and category labels
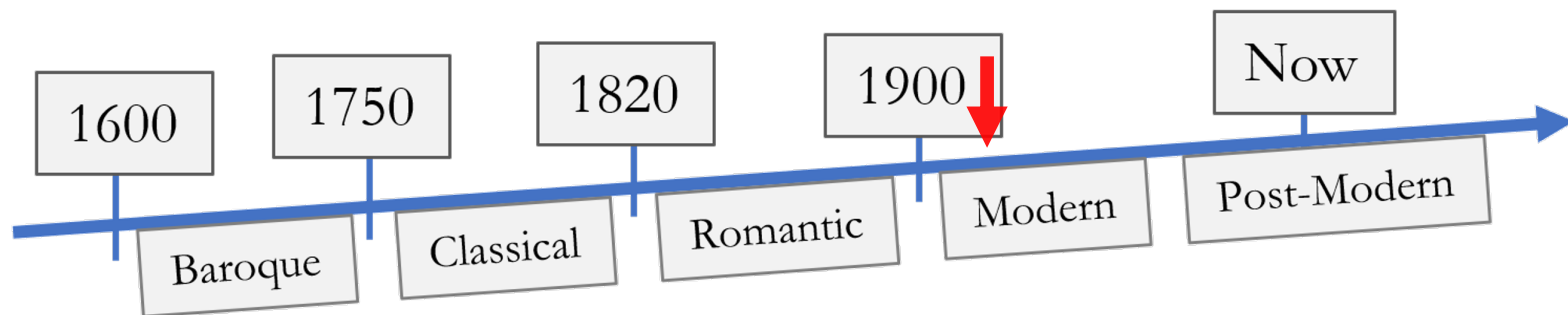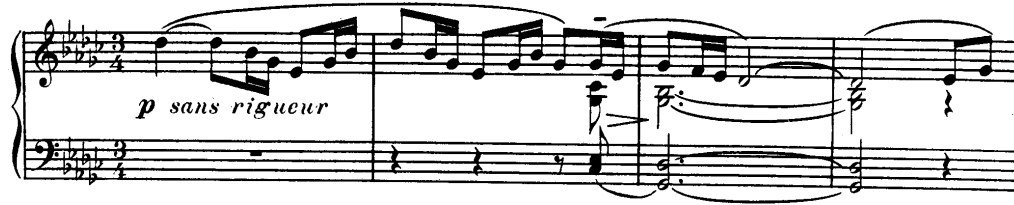
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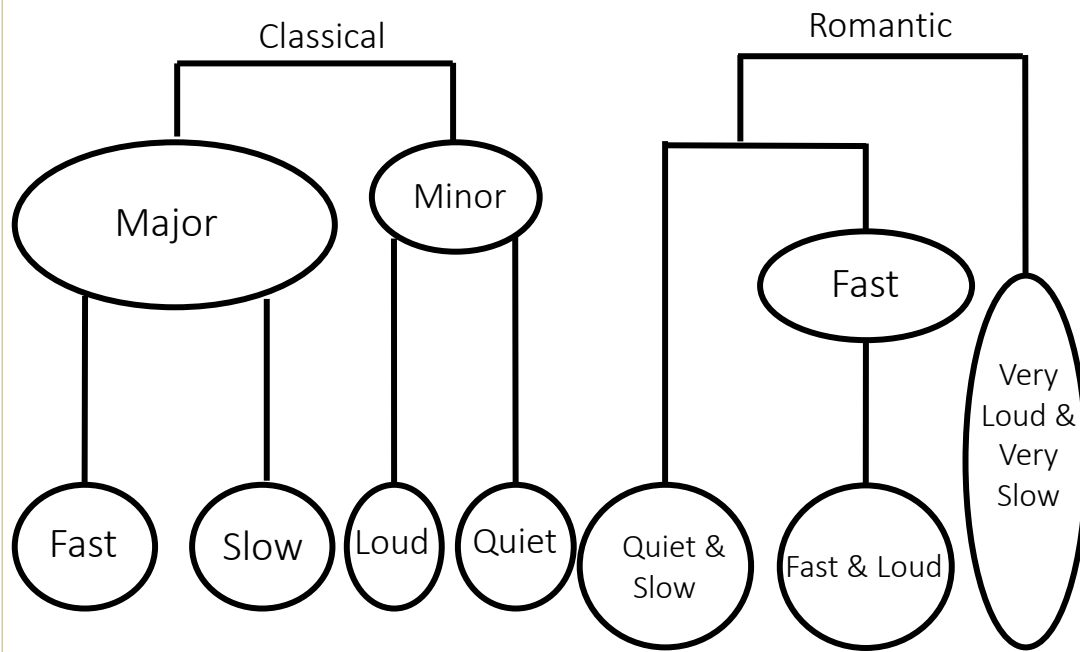
Claude Debussy
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Préludes
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Baroque

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Pitch   **Timing**

$$\frac{Attacks}{Time\ (s)} \times 60$$

Loudness

R

RMS Amplitude

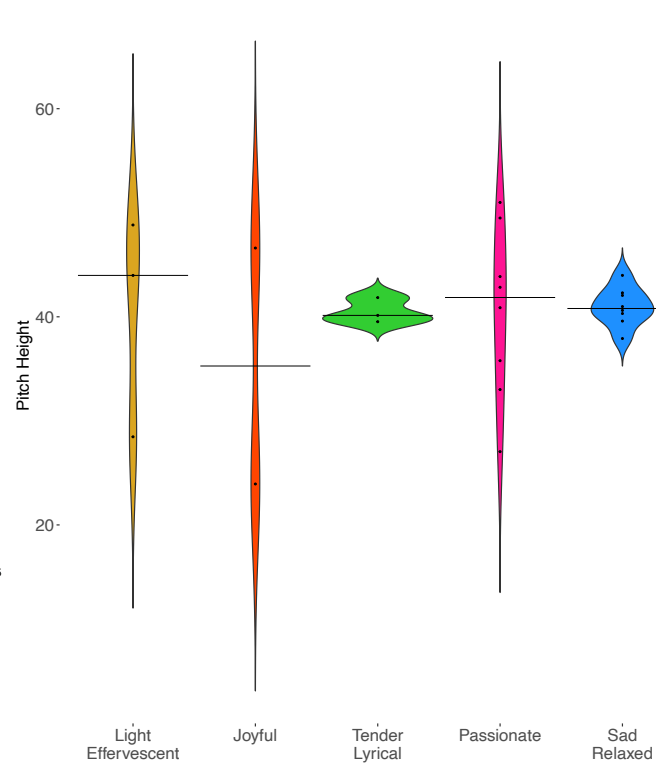## Russel's Circumplex

High
Arousal

Low
Valence

High
Valence

Low
Arousal

Sad/Relaxed
Passionate
Tender/Lyrical
Light/Effervescent
Joyful

Horn & Huron (2015)

Acoustic Cues Cluster Analysis