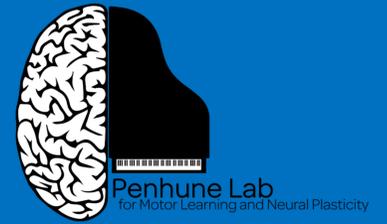


# That one sounds better: The effect of context on subjective responses to music



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## Introduction

- Statistical learning theories state that listeners acquire implicit knowledge of music through passive exposure<sup>1</sup>
- Implicit knowledge of musical patterns and structure is the basis for musical expectations<sup>2</sup>
- Confirmation and denial of expectations influence affective response to music
- Liking and predictability follow a U-shaped relationship, with music of intermediate predictability being most liked<sup>3, 4</sup>
- This relationship can be influenced by culture<sup>5</sup> and expertise<sup>6</sup>
- The following research examines how listeners' subjective reactions to music are influenced by musical context

## Method

Stimuli:

- 24 original 13-note isochronous melodies



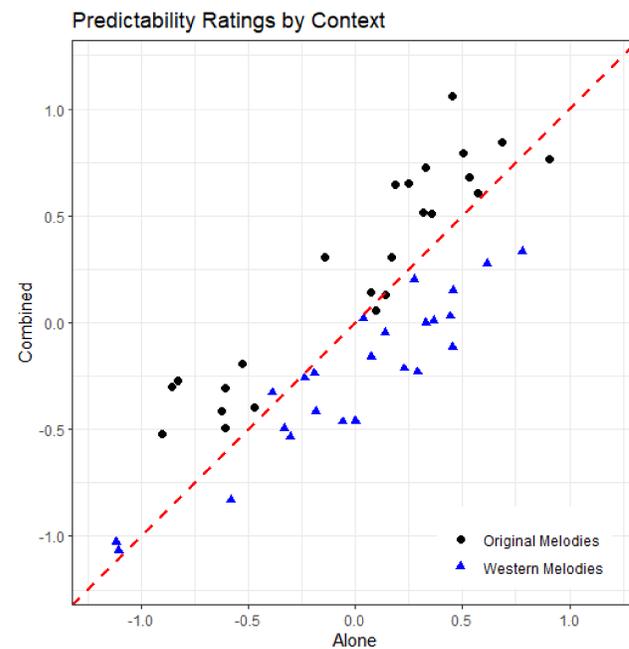
- 24 excerpts from Western music



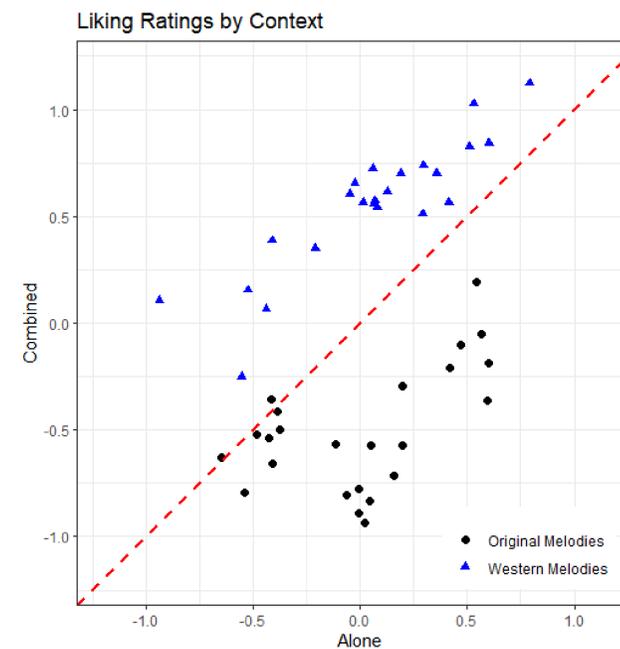
Listening Contexts:

- C1: Original melodies alone (N=33)
- C2: Western melodies alone (N=38)
- C3: Original and Western melodies together (N=42)
- Participants recruited online via Prolific and Pavlovia (M age=30; SD=10.5; M40)
- Melodies heard in random order
- Liking and predictability ratings for each melody (Likert 1-7)

## Results

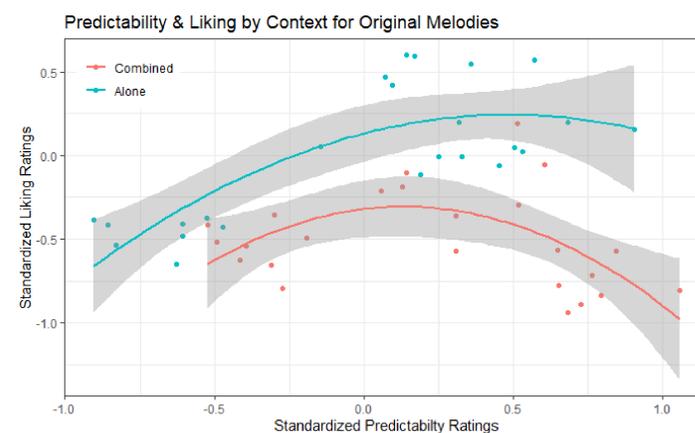


Western:  $t(23) = -6.18, p < .001$ ; Original  $t(23) = 5.89, p < .001$

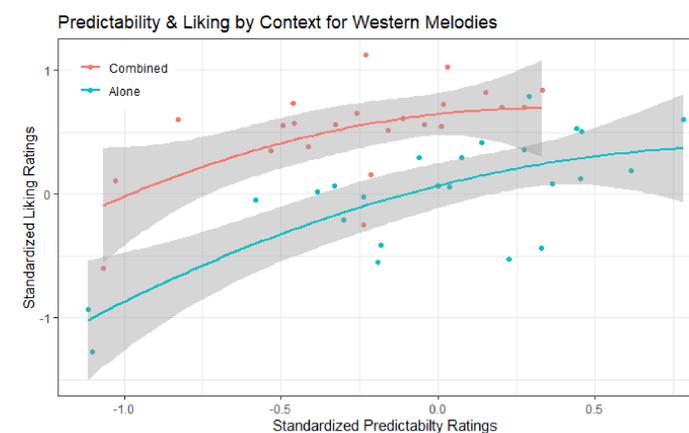


Western:  $t(23) = 12.26, p < .001$ ; Original  $t(23) = -7.28, p < .001$

Western music excerpts were rated as less predictable when in a listening context with simpler, isochronous melodies. Conversely, Western music excerpts were more liked in a combined context than when alone.



Combined:  $\chi^2(2)=18.82, p < .001$ ; Alone:  $\chi^2(2)=37.40, p < .001$



Combined:  $\chi^2(2)=33.92, p < .001$ ; Alone:  $\chi^2(2)=40.02, p < .001$

**References:** 1. Koelsch et al. (2019), Predictive processes and the peculiar case of music; 2. Pearce et al. (2010), Unsupervised statistical learning underpins computational, behavioural, and neural manifestations of musical expectation; 3. Gold et al. (2019), Predictability and uncertainty in the pleasure of music: A reward for learning?; 4. Bianco et al. (2019), Music predictability and liking enhance pupil dilation and promote motor learning in non-musicians; 5. Pearce (2018), Statistical learning and probabilistic prediction in music cognition: mechanisms of stylistic enculturation: Enculturation: statistical learning and prediction; 6. Hansen et al. (2016), "If You Have to Ask, You'll Never Know": Effects of specialised stylistic expertise on predictive processing of music; 6. Pearce (2005), The construction and evaluation of statistical models of melodic structure in music perception and composition.

## Method Contd.

- Objective predictability estimated using information theoretic model<sup>6</sup> (IC Range: Western: 3.48-10.80; Original: 2.82-8.01)
- Ratings were standardized by participant for data visualization
- Mixed effects models to examine the relationship between liking and predictability

## Results

- Excerpts from Western music were rated as less predictable in a combined context while the original melodies were rated as more predictable
- Excerpts from Western music were more liked in a combined context while the original melodies were less liked
- For the original melodies, there was a significant quadratic relationship of liking and predictability in both contexts
- For the Western melodies, there was a linear relationship between liking and predictability in the combined context. There was no benefit of a quadratic fit over linear ( $p = .67$ ). In the alone context, there was a significant quadratic relationship

## Conclusions

- Subjective responses to music are influenced by musical context
- Artificial stimuli seem more predictable and are less liked when presented alongside more ecological valid stimuli
- Despite having similar objective predictability, subjective responses differ
- Listener's may selectively access musical knowledge by context