

# Musical Evidence for Syllabification of Highly Moraic Structures in English

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## Introduction

### Hypotheses

1. There is a distinct division between people who syllabify diphthong+[l/r] (i.e. “fire”, “tire”, “desire”) words as one or two syllables
2. This difference is systematic and therefore measurable and predictable
3. Using music as indication of syllabic intuition is a legitimate methodology

### Background

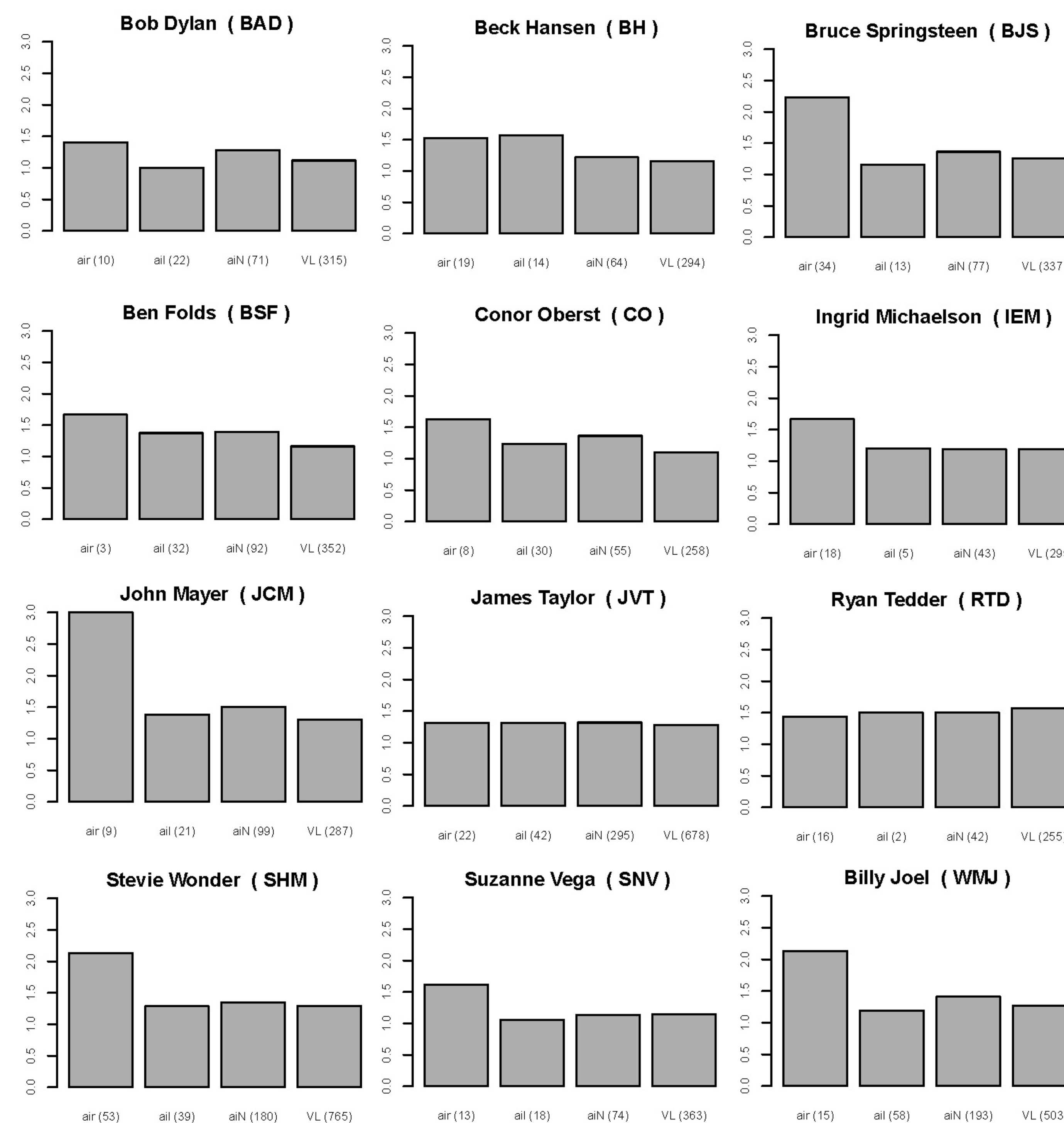
- The use of musical pitch to indicate syllabification patterns in English
- Accented/stressed syllables are usually attached to strong metrical positions (Sui, 2003)

## Methods

- Data was gathered from 12 American singer-songwriters, each of whom composed and sang their own songs:
  - Ben Folds
  - James Taylor
  - Ryan Tedder
  - Beck Hansen
  - Ingrid Michaelson
  - John Mayer
  - Billy Joel
  - Bruce Springsteen
  - Suzanne Vega
  - Conor Oberst
  - Bob Dylan
  - Stevie Wonder
- The words that were investigated had stressed final syllables with the following rimes:
  - [aiɪ] (primary target)
  - [ai] (control)
  - [al] (control)
  - [ain] (control)
  - [ail] (primary target)
  - [iɪ] (control)
  - [il] (control)
  - [aim] (control)
- Polymorphemic words and contractions were not included in the initial coding
- Two researchers listened to each token to determine how many notes were sung
  - If they had different judgements, the entire research group listened to and discussed the token

## Results

The following bar plots show the average number of pitches for each of the targets, compared to all coded rimes (VL) for each artist.



Statistical analysis shows that the syllabification contrast of target words and target control rimes was person-dependent. JCM, BSF, CO, WMJ, and SNV had significant effect for rime type [aiɪ], and BH had significant effect for time type [ail] ( $\alpha = 0.05$ , for multiple pitches feature).

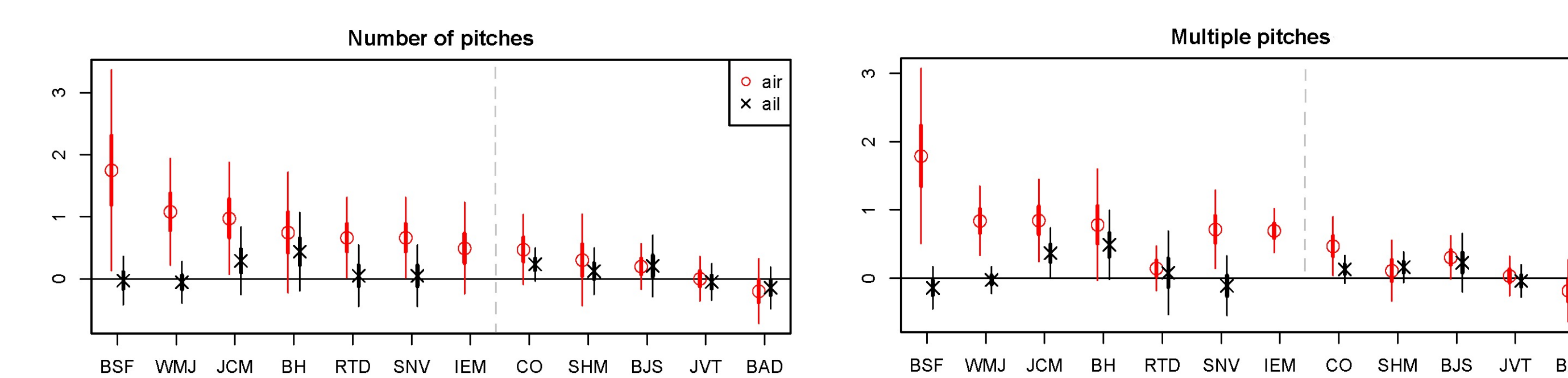


Figure 1

Figure 2

Figure 1 shows the average number of pitches per rime for both [aiɪ] and [ail], categorized by artist.

Figure 2 corrects by odds ratio, associating each rime to the a binary single/multiple pitches variable.

## Conclusion

- There is a statistically significant differentiation between those artists who categorize the diphthong + liquid rime as either one or two syllables
- Of the target rimes, artists were more likely to prefer two syllables for the [aiɪ] rime type than for the [ail] rime type.
- The distribution of pitches in the collected data supports the claim that because English only allows for two moras within the rime, candidate syllables containing more than two moras may be split accordingly (Lavoie, Cohn 1999).
  - This description is speaker-dependent.
- Impressionistically, artists for whom there was a significant difference in number of pitches, there is also a trend, based in sonority of the coda, of which targets are likely to be polysyllabic.
- Based on the results' concordance with our assumptions, we view that musical pitch is a reasonable estimator of individual's syllabification patterns.

## Further Research

- Consideration of compositional text-setting as analogous measure of syllabification
- Comparison of acoustic response and explicit judgments of syllabification of targets rimes.
- Morphological influence on syllabification
- Orthographic influence on syllabification

## References

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