

Dialect Imitation Across Typologically Distinct Prosodic Systems

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Introduction

- Speakers are able to adjust their prosodic patterns to approximate those of a different dialect [1], [2], [3]

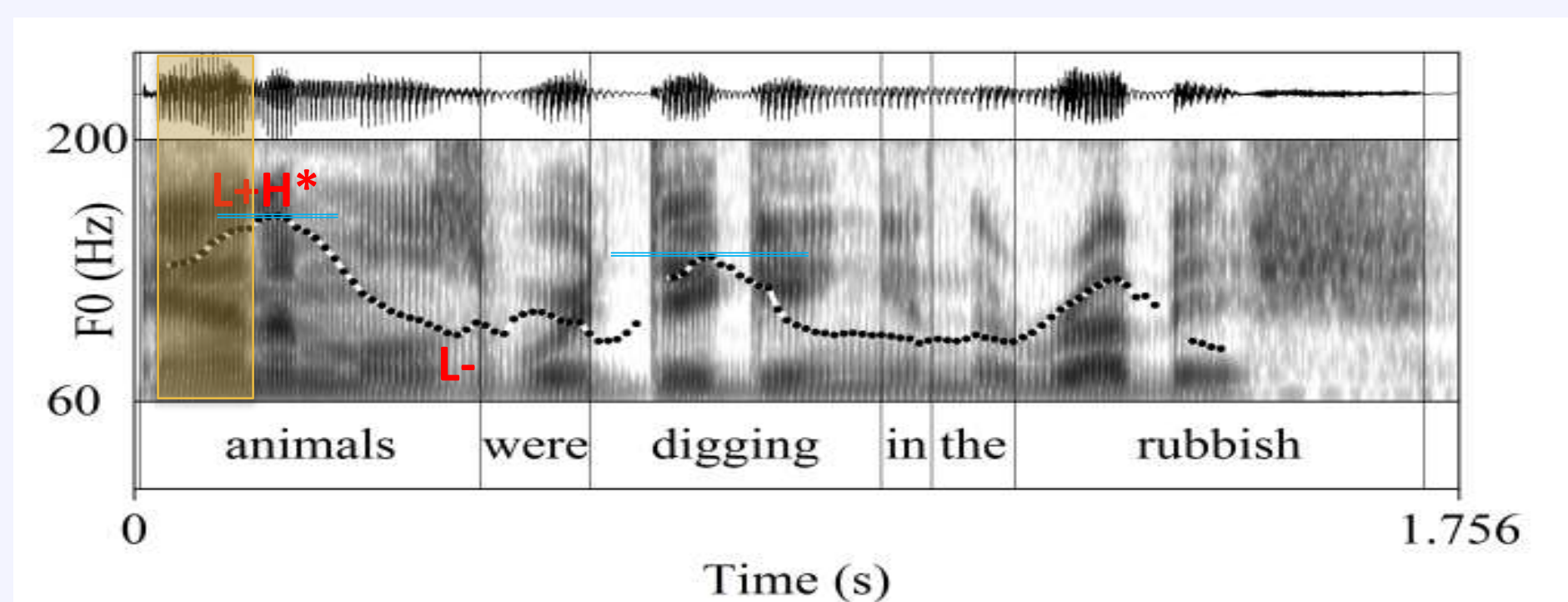
- Phonetic features:** f0 peak alignment, global pitch level
- Phonological features of contour:** tonal composition, boundary tone specification, downstep and scaling

- Only typologically similar systems have been investigated so far

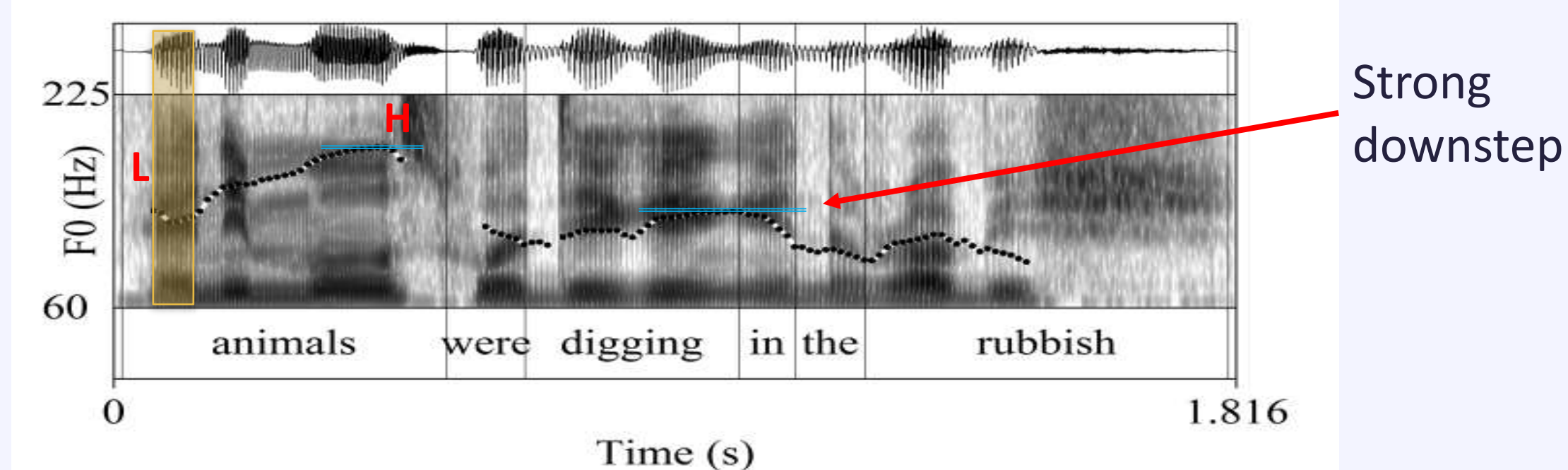
- Here we explore imitation between American and Singapore English

- AmE: *head* language, pitch accent specification
- SgE: *edge* language, Accentual Phrase (AP) boundary specification

AmE



SgE



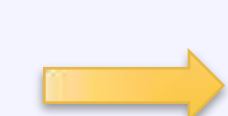
Issues

- Will strong typological differences interfere with imitation success?
- What is the role of exposure/experience with the target dialect in imitation success?
- Can speakers imitate token-by-token variability or do they construct targets from aggregates of observed patterns?
 - c.f., cross-linguistic imitation where this is not observed [4], [5]

Hypotheses

In the absence of shared phonological categories, speakers may...

- Not be able to adjust to target peak alignment or f0 ratio
- Use D1 inventory to approximate the early AmE peak alignment by constructing smaller APs (c.f., prosodic promotion)
 - Different alignment; no item-by-item phonetic matching; unable to suppress strong downstep between 1st / 2nd APs
- Phonetic value matching



Implications for the granularity of phonetic detail that can be accessed by the production system

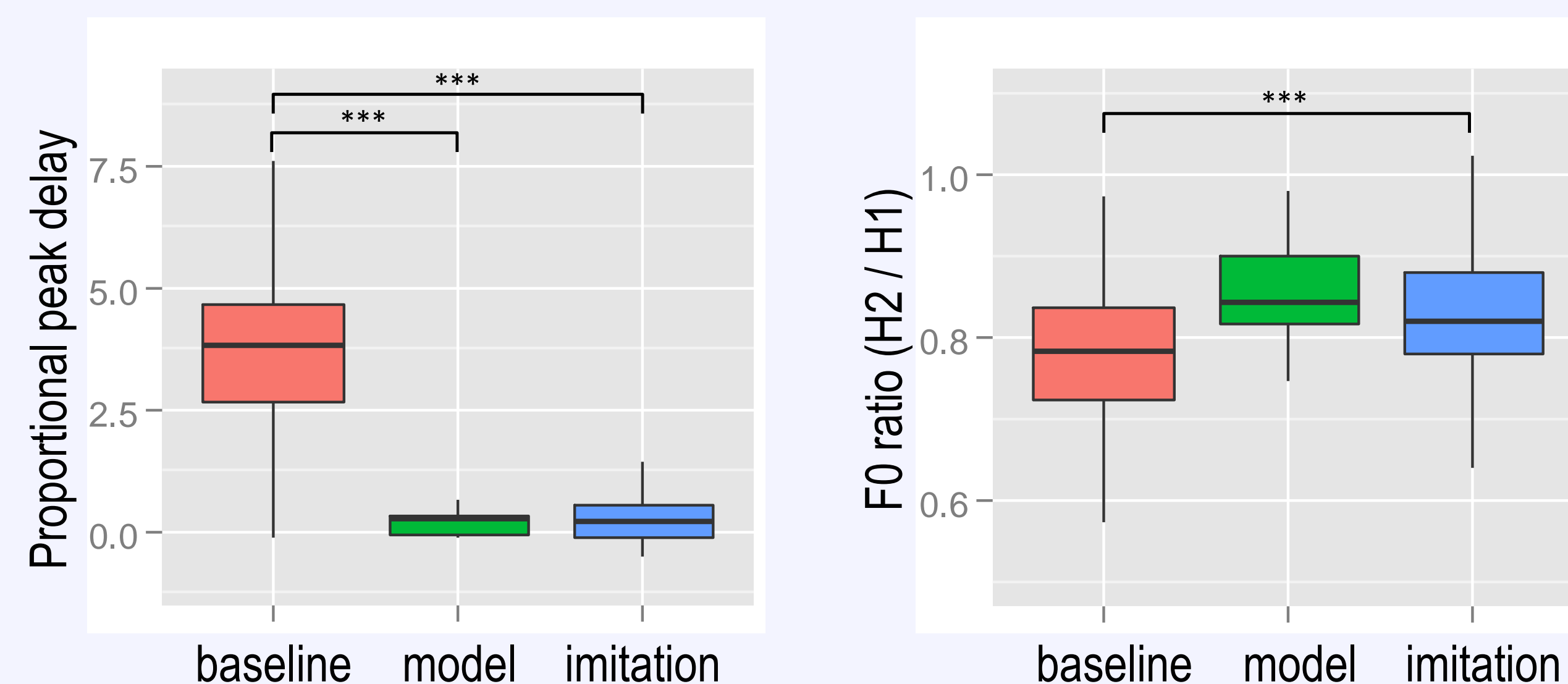
Methods

- Tasks: Baseline reading (native dialect) + Imitation (2 rounds)
- Target words: trisyllabic, initial stress, sentence-initial
- Participants: 19 males, bilingual in SgE/Mandarin, aged 21-27 yrs
- Measures: F0 peak alignment (proportional to target vowel), f0 ratio (H2/H1), weekly hours of exposure to AmE (self-reported)

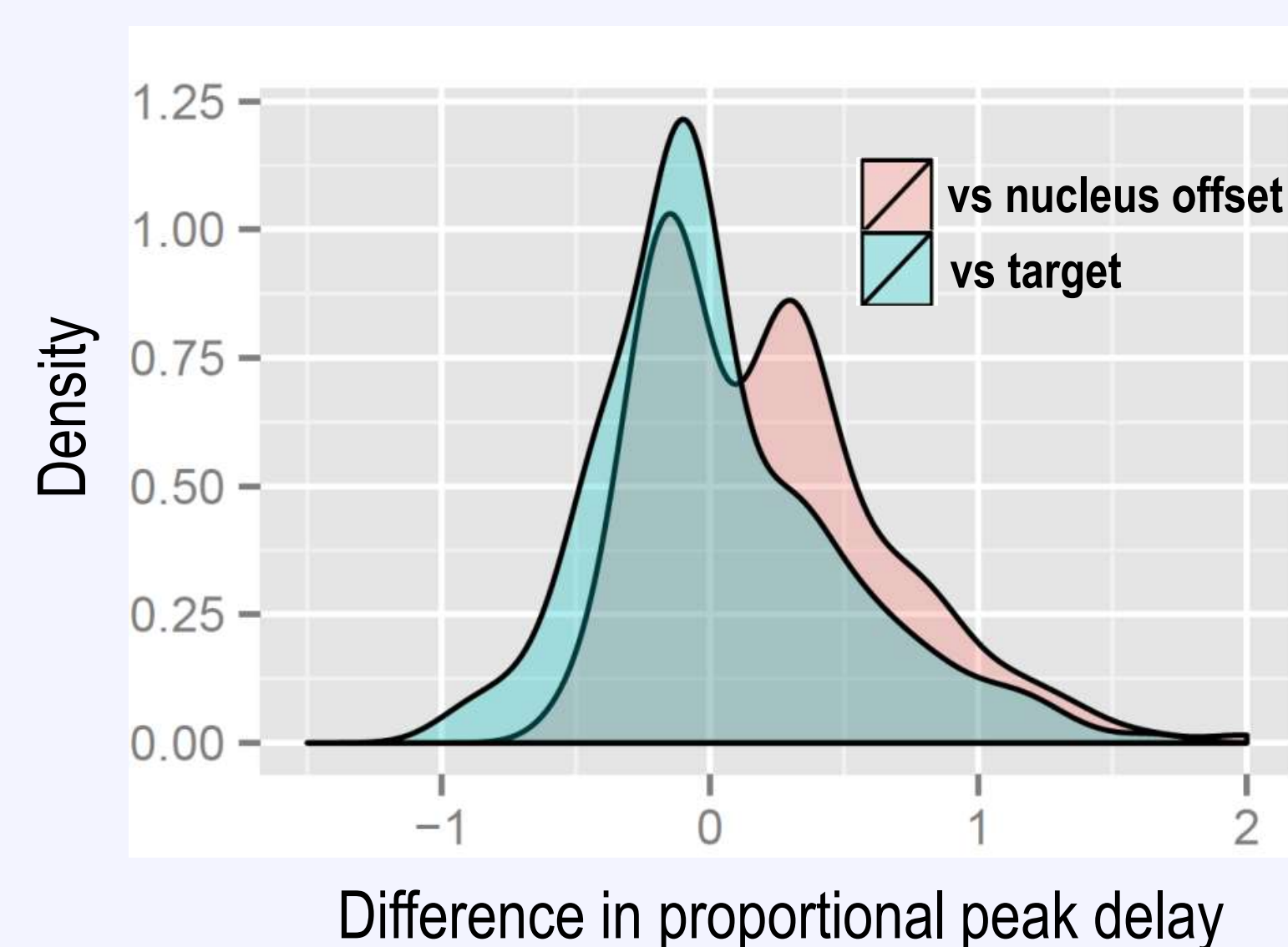
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Results



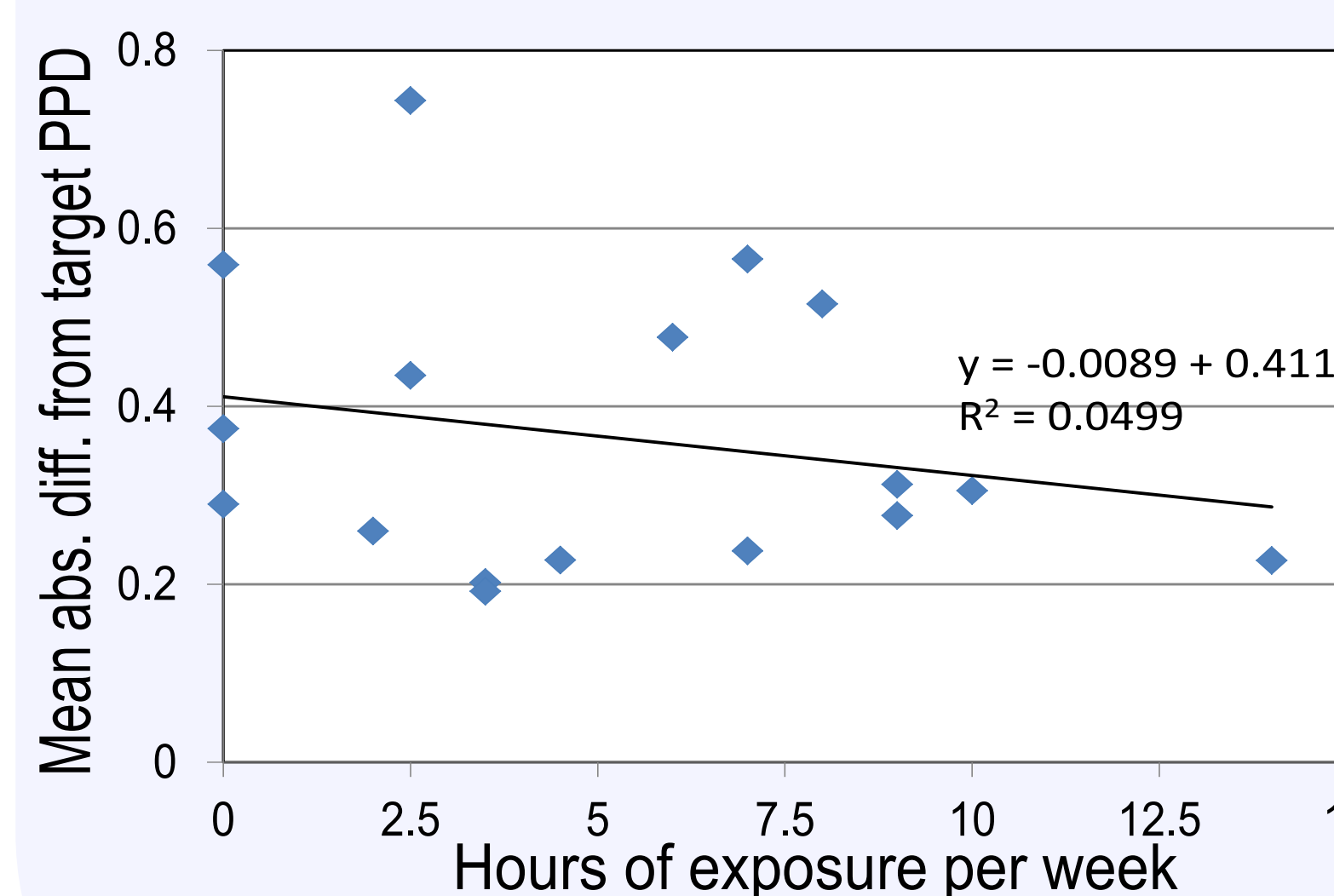
- Speakers shifted peak alignment distribution onto that of the model
- Speakers reduced H2 / H1 ratio towards target values
- Stats: Linear mixed effects (fixed: task; random: subject, items)



Were individual imitations aligned to the model speaker's tokens or to the nucleus offset?

("Error" scores were calculated as a function of either the target tokens or the nucleus offset)

- Scores based on target tokens follow a single distribution, suggesting that speakers reproduced the alignment of individual target tokens



Was alignment accuracy correlated with exposure?

(Standard error scores were calculated as the mean of the absolute target-by-target error values)

- Despite lack of significant correlation, variance appears to decrease with additional exposure, suggesting that phonetic matching precision in production depends on prior perceptual input

Discussion

- On the basis of alignment results, speakers implemented phonetic value matching on a token-by-token basis
- Speakers were able to adjust downstep magnitude to non-native values, suggesting non-assimilation to SgE phonology
- Therefore, strong typological differences do not appear to interfere with imitation
- Comparing with findings for imitation within/across related dialects [1] and cross-linguistic imitation [4], [5], this suggests an important role for perceptual (non-) assimilation [6], [7], [8] in the imitation of prosodic features