

Acquisition of L2 Japanese rhythm: How does durational variability change over time?

Introduction

Background:

- L2 speech rhythm development follows the universal path regardless of both the native language of learners and the rhythm of target languages, i.e., begins with syllable-timed like patterns (Ordin & Polyanskaya, 2015a)
- Rhythmic patterns at a certain developmental stages show L1-specific peculiarities (Ordin & Polyanskaya, 2015b)

Research questions:

- How does L2 rhythm develop over time within speakers?
- The developmental trajectory of L2 rhythm from syllable-timed to mora-timed patterns?

Rhythmic measures (Dellwo, 2006; Grabe & Low, 2002; Ramus et al., 1999):

- deltaC:** Standard deviation of consonantal interval durations
- deltaV:** Standard deviation of vocalic interval durations
- meanC:** Mean duration of consonantal intervals
- meanV:** Mean duration of vocalic intervals
- nPVI-V:** Normalized mean of the differences between successive vocalic intervals
- percentV:** Percentage of vocalic intervals
- rateCV:** Number of C and Vs per second (speech rate)
- varcoC:** Coefficient of variation of vocalic intervals
- varcoV:** Coefficient of variation of consonantal intervals

Method

Participants:

- 3 novice L2 Japanese learners with L1 English at the University of Alberta

Data:

- 3 collection sessions: Beginning, Middle, and End of semester
- 135 sentences: 15 sentences x 3 participants x 3 sessions

Statistical Analysis:

- Linear mixed-effects regression for each participant

Response variable: Rhythmic measures

Predictor variable: Time (i.e., first, second third)

Random intercept: Sentences

Native reference point in Figure 1:

- Mean rhythmic measurement of 5 native Japanese speakers (read speech) from Grenon & White (2008)

Results & Discussion

Results:

Observed syllable-timed like patterns from the beginning (low durational variability of V and C intervals)

Durational variability changes over time differently across speakers

- PA3 shows a number of changes but PA2 indicates only one change
- PA1 and PA2 shows relatively consistent changes over time (towards native reference points), but PA3 displays inconsistent changes (overshoot and undershoot the native reference points)

Discussion:

Different strategies may be used to acquire L2 rhythm across speakers

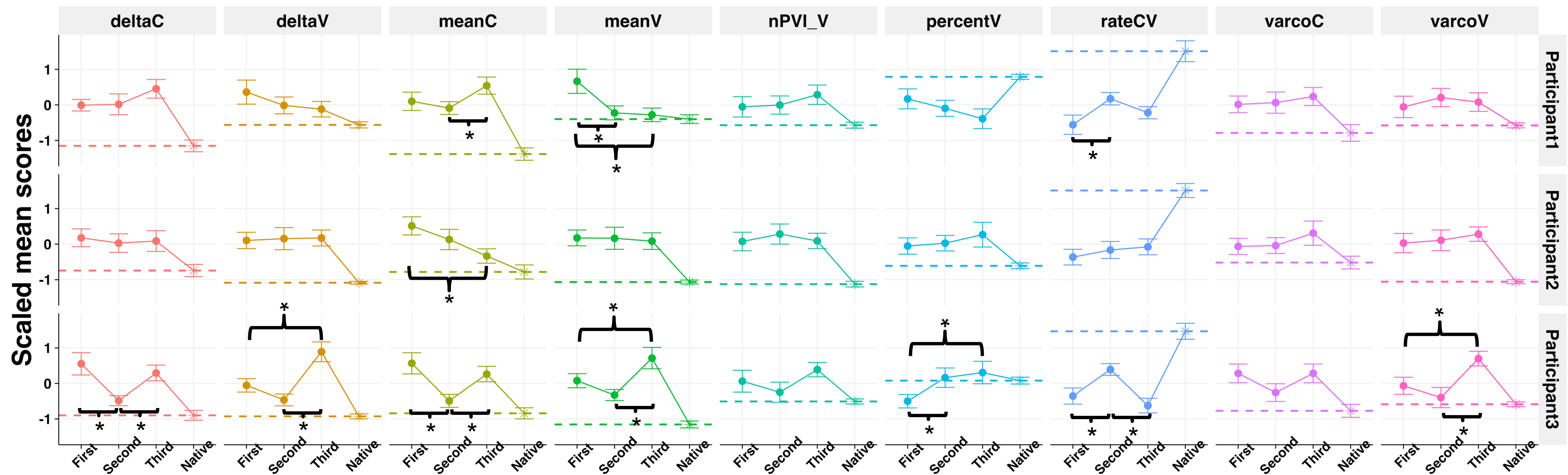
- Consistent and small changes over time
- A number of significant changes over time but inconsistent (i.e., overshoot and undershoot the target)

Future research:

Can we predict the ultimate attainment of speech rhythm as a function of the way durational variability change over time?

- Steady but small changes vs. unstable but a number of significant changes

Figure 1: Scaled mean scores of all the measurements over time between speakers



References:
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