

Title: *Phonological Advantages of Heritage Learners of Japanese*

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### **Abstract**

This ongoing experimental study examined whether or not heritage language (HL) learners of Japanese have significant advantages over second language (L2) learners of Japanese on phonological tasks as well as syntactic (grammar) tasks. Previous studies have found that HL learners benefit from a significant advantage in phonological knowledge over L2 learners but are on par with L2 learners in syntactic (grammar) knowledge. In our experiment, a total of 24 native speakers of Japanese, HL speakers of Japanese, and Japanese L2 learners were recruited and tested with two phonological tasks and two syntactic tasks.

### **Heritage Language Speakers (Polinsky & Kagan, 2007)**

- HL speakers/learners are bilingual speakers who have acquired their minority (non-English) languages at home
- HL speakers/learners have undergone the shift of their primary language from the home language to English due to social Anglophone pressure such as K-12 schooling
- "[A] language student who is raised in a home where a non-English language is spoken" and "speaks or at least understands the language (...) and is to some degree bilingual in that language and in English" (Valdés, 2001, p. 38)."

### **Previous Studies**

- Au et al. (2002), Knightly et al. (2003), and Oh et al. (2003)
  - Korean and Spanish low-proficiency HL speakers had better phonological perception and production (in terms of voice onset time or VOT) than L2 speakers at the same proficiency
- Other studies also found phonological advantages among HL speakers
- Au et al. (2002) and Knightly et al. (2003) begin{itemize
  - Korean and Spanish low-proficiency HL speakers did not perform better than L2 speakers in the morphosyntax task (e.g., gender agreement among determiners, adjectives, and nouns in Spanish)
- Other studies also found no syntactic advantage among HL speakers, but the results are quite mixed.

### **Research Questions**

- Do Japanese heritage language learners have a learning advantage in phonological knowledge but not in syntactic knowledge?
- If so, what are the pedagogical implications of this imbalance?

### Experiment Design

- The experiment was designed with PsychoPy (Peirce, 2012), a Python-based psychology experiment program. Audio recordings were analyzed with Praat (Boersma & Weenink, 2001).
- The experiment consists of:
  - Language background questionnaire (5 min)
  - Japanese vocabulary test (70 JLPT vocabulary items / 10-15 min)
  - Pronunciation elicitation task (30-45 min)
  - Grammatical judgment task (30-45 min)
- All research participants received \$25 honorarium for their participation.
- The participant recruitment is still continuing. As of today, we have tested
  - 11 native Japanese speakers
  - 6 HL Japanese speakers
  - 7 L2 Japanese speakers

その日はいそがしいですが、やくそくの時間には\_\_\_\_  
\_\_\_\_いきます

- 1: かならず
- 2: やっと
- 3: ほとんど
- 4: つぎに

Number

Please read aloud the following sentence:

さっき、「腰 (こし)」と言(い)った。

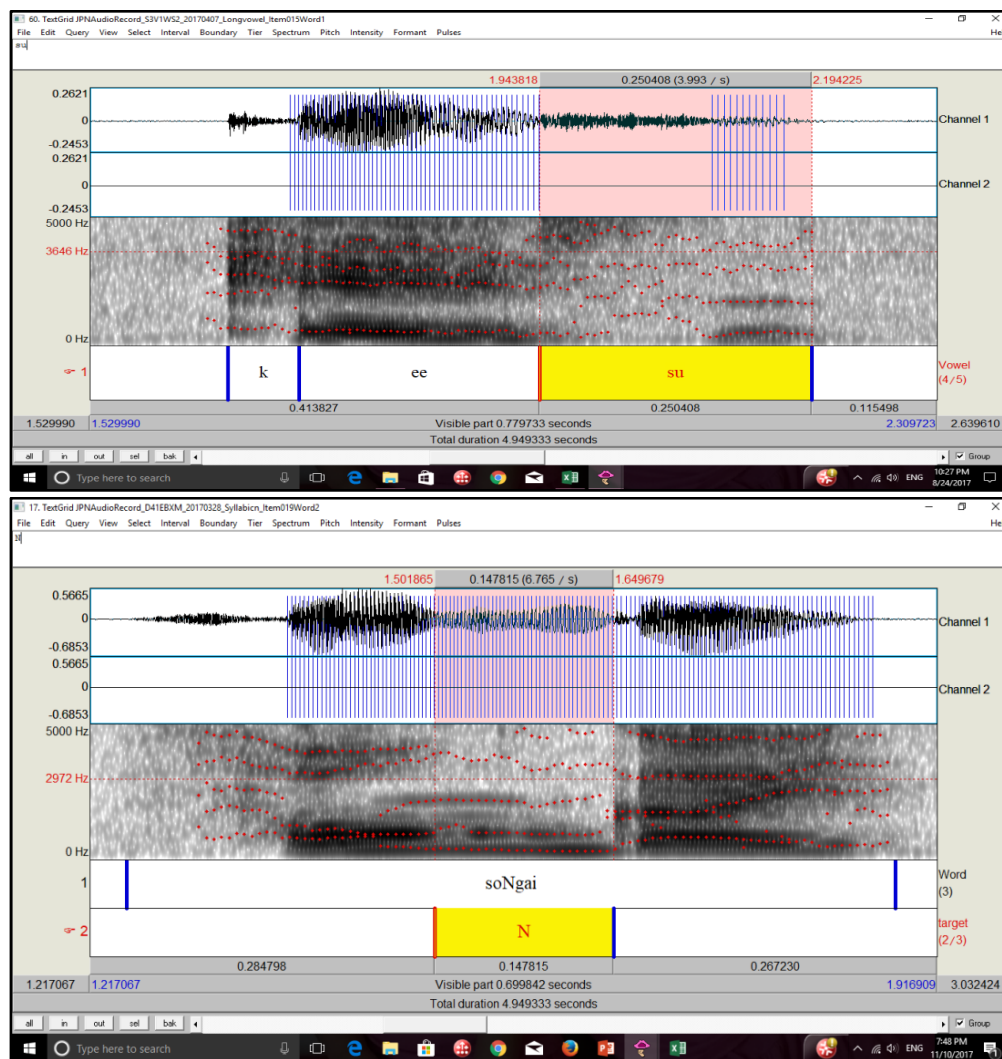
Recording will stop after 5 seconds.

**NOW RECORDING**

## Tasks

### Vowel length and the length of moraic nasal

- Participants were asked to produce the target word in a carrier sentence: さっき X と言 (い)った
- The target words (x) are minimal pairs of: begin{itemize}
  - Vowel length (e.g., おじいさん /oji:sa:n/ vs. おじさん /ojisa:n/)
  - Moraic nasal (e.g., あんまり /aNmari/ vs. あまり /amari/)
- Praat was used to measure the durations of the following segments: begin{itemize}
  - Vowel length, length of moraic nasal, and the whole word



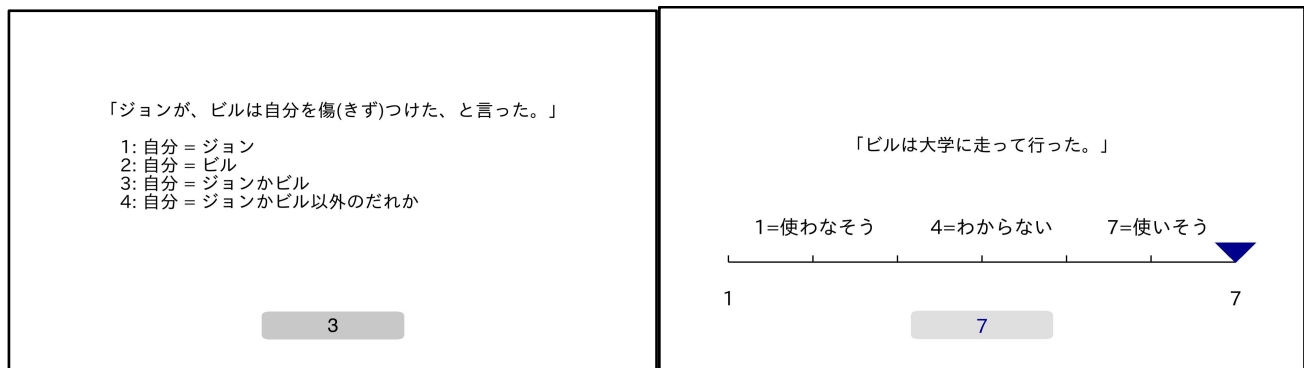
### Long-distance binding of reflective pronoun 自分 (*jibun*) (Kuno, 1976)

- In Japanese, the antecedent of 自分 (じぶん) (*jibun*) can be in the matrix clause of the compound sentence (long-distance)
  - John says that Mary will take good care of herself/\*himself. (self = Mary, not John)

- ジョンは、メアリーが自分 (じぶん) を大事 (だいじ) にすると言 (い) った (自分 (じぶん) = John or Mary)
- The dative phrase (adjunct) cannot be the antecedent of *jibun*
  - ジョンは、メアリーに自分 (じぶん) を大事 (だいじ) にすると言 (い) った (自分 (じぶん) = John)

### Manner-of-motion vs. Inherently directed motion verbs + PP (Inagaki, 2001, 2002)

- Manner-of-motion verb takes locational particle で whereas inherently-directed motion verb takes directional particle に. begin{itemize}
  - [mannerV + locational PP]: ビルは、公園 (こうえん) で歩 (ある) いた。
  - [mannerV + directional PP] (questionable): superscript{?}ビルは、公園 (こうえん) に歩 (ある) いた。
  - [inherently-directedV + directional PP]: ビルは、公園 (こうえん) に行 (い) った。
  - [inherently-directedV + locational PP] (ungram): \*ビルは、公園 (こうえん) で行 (い) った。



## Results

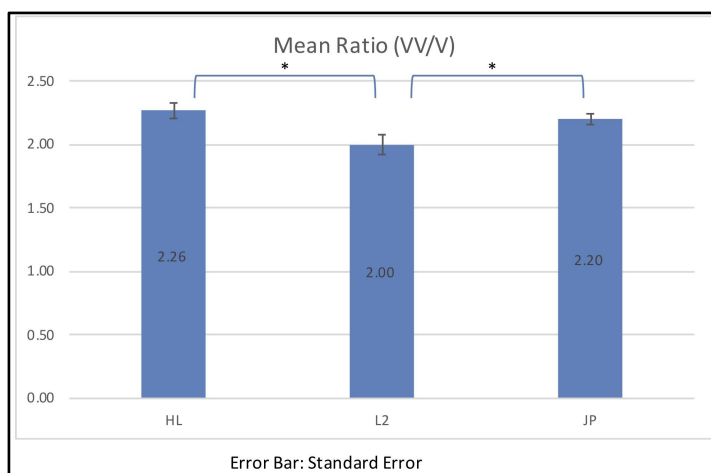
### ILPT Vocabulary Items (max 80 points) / Proficiency level

- Most heritage participants were intermediate-advanced proficiency whereas L2 participants were low-intermediate proficiency.
- Proficiency is not matched; More high-intermediate L2 participants needed.

Group	n	Min	Median	Mean	Max
Native	11	73.0	78.0	76.9	79.0
L2	7	13.0	23.0	24.1	36.0
Heritage	6	32.0	60.5	53.8	75.0

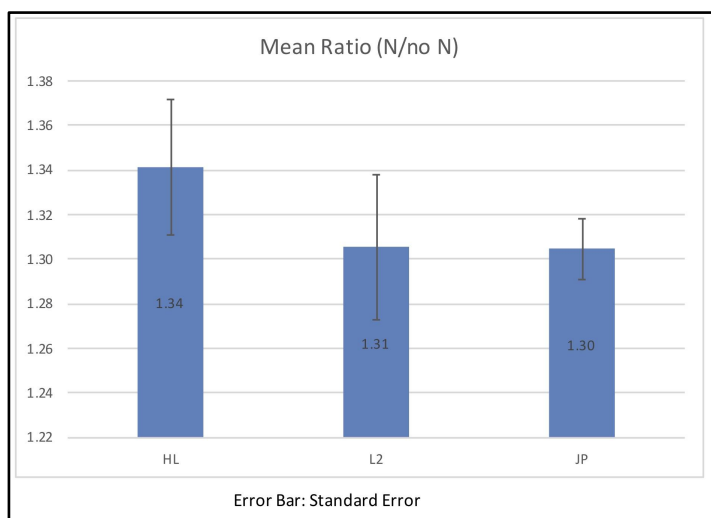
### Vowel length contrast (V vs. VV)begin{itemize}

- The duration ratios of long to short vowels are similar between native and heritage speakers.
- L2 speakers' duration ratios of long to short vowels are significantly smaller than those of Japanese and heritage speakers.



### Nasal Contrast

- The duration ratios of words with /N/ to those without /N/ are similar between native and L2 speakers.
- However, L2 speakers made numerous pronunciation errors compared to heritage speakers (28% errors vs. 4% errors).



### Results of the long-distance *jibun*

Condition	Native speaker		L2		Heritage	
	Matrix	Local	Matrix	Local	Matrix	Local
Long Distance	44.6%	38.6%	8.9%	63.0%	37.5%	50.7%
Dative	73.4%	13.6%	57.1%	19.0%	66.0%	16.6%

### Results of the Motion Verbs + PP (on the scale of 1-7; SD in parentheses)

	Native	L2	Heritage
LocPP (で) + MannerV	6.4 (1.3)	5.2 (1.9)	5.7 (1.8)
DirPP (に) + MannerV	2.4 (2.1)	4.4 (2.0)	5.3 (2.0)
DirPP (に) + DirectV	4.8 (2.3)	4.4 (2.0)	5.6 (2.0)
LocPP (で) + DirectV	3.3 (2.4)	3.6 (1.9)	4.4 (2.5)

### Conclusion

- The data at hand show somewhat more complex pattern than the phonology-vs-(morpho)syntax dichotomy.
  - Heritage advantage in:
    - Phonological: Vowel contrast (V vs. VV)
    - Syntactic: Long-distance reflexive pronoun
  - No heritage advantage in:
    - Phonological: Nasal /N/ contrast
    - Syntactic: P (-ni or -de) + Motion verbs
  - Statistical analysis with a larger sample (esp. advanced L2) is necessary.

### Pedagogical Implications

- The results of production tasks have shown that Japanese HL learners have advantage in producing short vs. long vowel contrast but not in nasal /N/ contrast. What this means is that both HL and L2 learners of Japanese will benefit if provided with the instruction that will focus on improving oral production skills of /N/. It may be useful to explicitly show how Japanese /N/ is produced depending on the immediately following consonant. /N/ is realized as a uvular nasal when it's placed either word- or sentence-finally. Otherwise, /N/ is known as having allophones depending on the following phoneme; [m] when followed by bilabials, [ŋ] when followed by velars, and [n] when followed by alveolars (Vance 2008). L2 learners of Japanese will also benefit from additional instructions to develop a sense of sub-syllabic unit 'mora' as a basic unit of sound. For instance, classroom activities such as mora-counting activity and perceptual discrimination activity might be beneficial. In the former, an instructor asks students to count how many mora(e) a word contains (e.g., 'ぶんがく /buŋaku/' as 4 morae and 'ぶがく /bugaku/' as 3 morae). In the latter task, students will be asked to identify whether two words that they were presented auditory are the same or different (e.g., 'ゆき ゆうき/yuki - yuuki/' as different).