

Phonetic Compression of Minor Phonological Phrases as a Licensor of WH *in situ* in L2 Japanese: A Pilot Study of Contiguity Theory in SLA

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Research Question: Do advanced L2 speakers have a phonological grammar with no prosodic boundaries between the WH word and the Question complementizer (+Q) to properly license WH *in situ* as would be the case if Richards' (2010) Contiguity Theory holds?

Languages have two strategies for forming WH questions:

English (Movement): Whom should Bob call?
Japanese (*in situ*): Mito ga **nani o** katta no?
 Mito-Nom what-Acc bought +Q
 'What did Mito buy?'

Richards (2010, in press) argues that these are two strategies to achieve *contiguity*;

- (a) **English:** linear adjacency of C (+Q) and WH
- (b) **Japanese:** phonetic compression on the WH element, and lack of prosodic boundaries between WH and +Q in sentences like (1) compared with (2) where we compare **bolded** objects, and *italicized* minor phrases.

1) Naoya wa **nani o** *nomiya de nonda* no?
 ナオヤは、何を飲み屋で飲んだの?
What did Naoya drink at the bar?

2) Naoya ga **nanika o** *nomiya de nonda*.
 ナオヤが、何かを飲み屋で飲んだ。
 Naoya drank **something** at the bar.

While other interfaces have been central to the field of SLA (White, 2011; Montrul, 2011; Sorace, 2012; Goad & White, 2004), the phonology/syntax interface has received less attention.

Operational Question: Will advanced non-native speakers of Japanese show this phonetic compression of the minor phrases in their production of WH questions?

If they do in this pilot study, it will be useful to follow up on the developmental path in a full study.

Subjects

5 self-assessed advanced/intermediate instructed learners of Japanese; L1 English (n=3); Mandarin (1); Cantonese (1).

Task

Rehearse in advance, and read out-loud 19 Japanese sentences (WH; Y/N; declarative)

Recorded on Audacity at 44KHz; Pitch tracking on Praat 6.0.09.

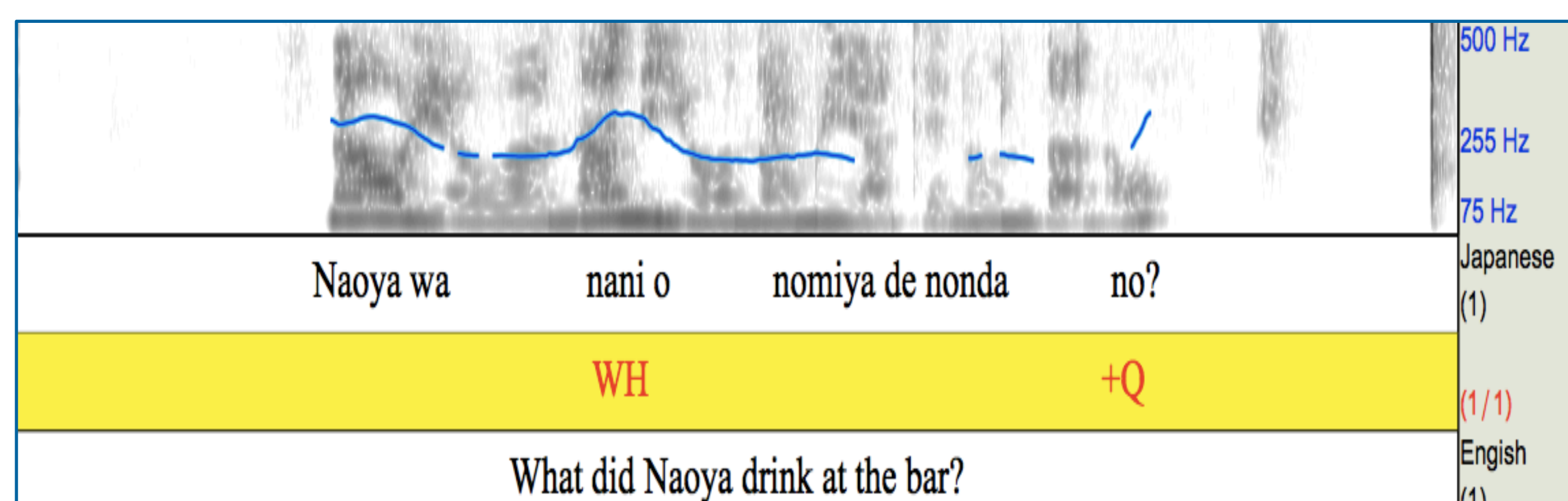


Figure 1. Pitch contour of non-native WH question.

Table 1. Non-native pitch contours in the WH domain.

Subject #	nani-o WH	nomiya-de	nonda	no +Q
S1	141 Hz	103 Hz	108 Hz	140 Hz
S3	313 Hz	229 Hz	234 Hz	289 Hz

Prosodic Structure

Note the level pitch between WH and C (+Q). For these speakers, we posit the following structures (from Richards, 2010):

[DP wh [DP [VP]] C
 (MinP) (MinP)
 (MinP) ← Wh domain

The WH and the C are **not** separated by prosodic boundaries.

The advanced subjects clearly show a nativelike pattern:
 High pitch **WH** > no phrase boundaries > high pitch **+Q**

Pitch Compression

2. Naoya ga **nanika o** *nomiya de nonda*.
 ナオヤが、何かを飲み屋で飲んだ。
 Naoya drank **something** at the bar.

3. Naoya wa **nani o** *nomiya de nonda* no?
 ナオヤは、何を飲み屋で飲んだの?
What did Naoya drink at the bar?

Table 2. Non-native pitch averages: DP vs. WH Objects (#2 & #3).

Sentence #2	DP Direct Object	270 Hz Average (all subjects)
Sentence #3	WH Direct Object	262 Hz Average (all subjects)

Note the *modest* pitch compression on the WH Direct Object

17. Noboru wa **piza o** mottekitandesu ka?
 ノボルは、ピザを持って来たんですか?
 Did Noburo bring **pizza**?

19. Tarō wa **nani o** mottekitandesu ka?
 タローは、何を持って来たんですか?
What did Taro bring?

Table 3. Non-native pitch averages: DP vs. WH Objects (#17 & #19).

Sentence #17	DP Direct Object	287 Hz Average (all subjects)
Sentence #19	WH Direct Object	278 Hz Average (all subjects)

Note the *modest* pitch compression on the WH Direct Object.

Table 3. DP vs. WH object average pitch; all subjects, all sentences.

All Subjects' DP Direct Objects Average	250 Hz
All Subjects' WH Objects Average	244 Hz

Note the *modest* pitch compression on the WH Direct Object

Multiple WH Questions and Prosodic Structure

8. **Dare ga nani o** kaimasita ka?
 誰が何を買いましたか?
 Who bought what?

Table 4. Pitch contour of multiple WH question; averaged across all subjects.

WH1	WH2	Verb	C
279Hz	245Hz	197Hz	235Hz

[wh[wh[V] C]]: no prosodic boundaries between **WH** and **C (+Q)**

Effects of Instruction & Proficiency

Pitch compression is not taught in class, but rising intonation is. Perhaps the pitch plateau is merely a consequence of rising intonation. Difficult to tell but it does seem to be connected to proficiency level:

Intermediate subjects (n=2): falling contour on Q's and less obvious pitch compression.
Advanced subjects (n=3): rising contour and more nativelike performance.

Conclusion

The advanced L2 learners (n=3; multiple L1s) show evidence of (a) modest pitch compression in the WH domain, and (b) No prosodic boundaries in the Minor Phonological Phrases internally. Consistent with Richards (2010), these learners appear to have acquired the appropriate Spell-Out strategy for ensuring contiguity in Japanese WH Questions, **though the evidence for (b) seems to be stronger than the evidence for (a)**. More subjects at both proficiency levels are needed to pursue the research question further.

References

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