Prosodic Realization of Accented and Unaccented Postpositions in Japanese

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Background This paper investigates the prosodic realizations of lexically specified bi- and trimoraic post-nominal particles (postpositions) in Japanese, which are either accented (A), i.e. realized with a HL falling pitch, or unaccented (U), i.e. realized without a falling pitch.

Postpositions have conventionally been thought to form a prosodic unit with its preceding noun [1]. [2,3] supports this claim with detailed descriptions of varying noun-postposition accent combinations, but only utilizes data from pitch accent dictionaries. The study in [4] using the Corpus of Spontaneous Japanese, meanwhile, shows that A postpositions retain their lexical accent following nouns, but only looks at AA sequences. As such, there is a lack of production studies examining all possible A and U noun-postposition sequences.

A compounding factor on the prosody of these postpositions is Boundary Pitch Movement (BPM), which are F0 movements at phrase boundaries that correspond to pragmatic functions [5]. This study is interested in a specific type of BPM: the LHL% rise-fall BPM observed in the casual speech of younger Tokyo Japanese speakers, marking an "explanatory" tone. Crucially, LHL% BPM was not accounted for in [2,3], as intonation of casual speech is not included in pitch accent dictionaries. Corpus data from [4], however, shows that A postpositions subject to LHL% BPM have their accents deleted.

Methodology The present study provides a detailed investigation of the interaction between i) the lexical accent of the postposition, ii) the lexical accent of the preceding noun, and iii) LHL% rise-fall BPM. In addition, we also include U nouns and postpositions in our analysis, which were not studied in [4]. The research questions are:

a. How are A/U postpositions realized following A/U nouns?
b. How does BPM influence the prosodic realization of these postpositions?

The data for this study is taken from a larger set of data of complex DPs elicited from 6 Tokyo Japanese speakers in their 20s (4 male, 2 female). 192 tokens with the following noun-postposition sequences were analyzed: AA, AU, UU, UA (A: accented, U: unaccented). An example of an AA sequence in a carrier sentence is shown in (1).

Results Of 192 tokens, 107 were realized with LHL% BPM, and 85 were realized without BPM. U postpositions were more likely to take on a LHL% BPM (70%) than A postpositions (40%). Noun-postposition accent sequence did not affect this pattern.

In terms of prosodic realization, non-BPM tokens in UU, UA, and AU sequences showed that postpositions form a prosodic unit with its preceding noun, with realizations typical of standard Tokyo Japanese prosody (Table 1). These realizations concur with the patterns described in [2,3]. Two subpatterns, however, were displayed in AA sequences: i) downstepping of the A postposition, indicating a noun-postposition prosodic unit, and ii) pitch boost, where the postposition is given prominence over the noun and takes on a raised F0.

As for tokens with LHL% BPM, lexical accents of both A and U postpositions subject to BPM were deleted, resulting in identical realizations. The rise-fall pitch contour of LHL% BPM was realized on the final mora in both A and U postpositions (Fig. 1). Postposition F0 was always higher than the preceding noun, indicating that postpositions subject to BPM are prosodically dissociated from the preceding noun.

Discussion & Conclusion In all combinations, we see evidence that postpositions not subject to BPM are prosodically grouped with its preceding noun, thus supporting the patterns in [2,3]. The pitch boost observed in certain AA sequences, however, shows that speakers may also choose to highlight the postposition over the noun. Despite the discrepancy in AA sequences, the accents of A postpositions are preserved in all tokens, supporting the findings of [4].

This study also shows that LHL% BPM overrides these noun-postposition accent interactions and renders identical realizations of both A and U postpositions regardless of the preceding noun. Prosodic prominence is also assigned to these postpositions. Additionally, we found that U postpositions take on a LHL% BPM more readily compared to A postpositions. To explain this, we can posit that the realization of lexical pitch fall accents are prioritized in Japanese. As BPM has the effect of deleting the accent, non-BPM realizations are preferred to BPM realizations.

(1) AA sequence (boldface) elicited in a carrier sentence

gakkoo-de	*ookii*	*shiroi*	***megane***	***bakari***	*hakkiri*	*mieta*
school-LOC	big	white	**glasses**	**only**	clearly	see

'At school, I clearly saw big white glasses only.'

	$\mathbf{U_{Particle}}$	$\mathbf{A_{Particle}}$
$\mathbf{U_{Noun}}$	$U_{Particle}$ forms a plateau with U_{Noun}	$A_{Particle}$ realized faithfully without pitch boost
$\mathbf{A_{Noun}}$	$U_{Particle}$ compressed following A_{Noun}	$A_{Particle}$ downstepped after A_{Noun} $A_{Particle}$ realized with pitch boost

Table 1: Realization of non-BPM tokens by noun-particle sequence

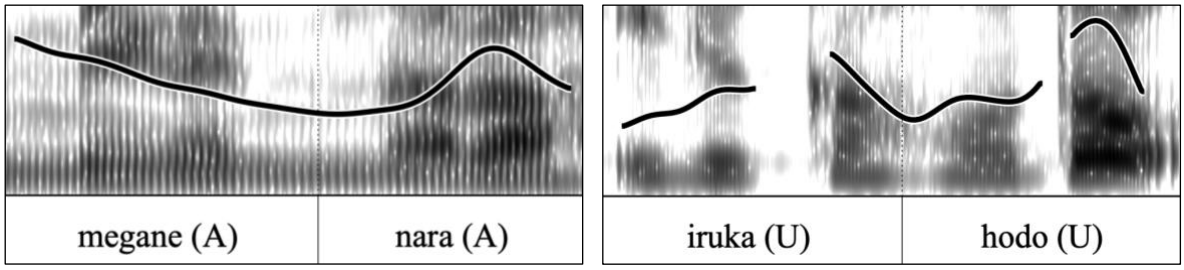

Figure 1: LHL% BPM in AA (left) and UU (right) sequences

References

[1] Igarashi, Y. (2014). Typology of intonational phrasing in Japanese dialects. In Sun-Ah Jun (ed.), *Prosodic Typology II: The Phonology of Intonation and Phrasing*. (pp. 464–492). OUP.

[2] Kori, S. (2015). Joshi jodōshi no akusento nitsuite no oboegaki: chokuzen keishiki to no fukugō keitai no kanten kara no bunrui (Reflections on the accents of particles and auxiliary verbs: classifications from the perspective of compound form with the preceding pattern). *Gengo bunka collaborative research project* 2014: 63-74.

[3] Kori, S. (2020). Nihongo no joshi jodōshirui no akusento : ichiran to tsukaiwake, henka no hōkōsei (Accents of particles and auxiliary verbs: list and the direction of its proper use and change). *Gengo bunka collaborative research project* 2019: 13-24.

[4] Maekawa, K., & Igarashi, Y. (2007). Prosodic phrasing of bimoraic accented particles in spontaneous Japanese. In *Proceedings of ICPhS 16*, (pp.1217-1220). Saarbrücken.

[5] Venditti, J. J. (2005). The J_ToBI model of Japanese intonation. In Sun-Ah Jun (ed.), *Prosodic Typology: The Phonology of Intonation and Phrasing*. (pp.172-200). OUP.