

The source of reinforcement of pitch fall in kakoo-shiki in the Shiramine dialect of Japanese

1. Introduction Japanese dialects with *shiki* are of particular importance in Japanese accentology since it holds a key to elucidate the history of Japanese word-level prosody (Uwano, 2006). *Shiki* refers to phonological contrasts in pitch movement pattern, but unlike pitch accent, the pitch contour of shiki covers an entire accentual unit, usually a word. Kakoo-shiki is one of the shiki types, characterized by the f_0 fall steeper than the background declination but shallower than accentual fall and by a later onset of the fall (Yoshida, 2011). A phonetic variation has been known for kakoo-shiki in the Shiramine dialect, termed as “*kakoo-kyooka* (fall reinforcement; FR; Nitta, 1985, 2010)”: pitch fall in kakoo-shiki becomes steeper (and earlier) when followed by “marked” bound morphemes that carry its own lexical accent ([]), e.g., *-]mo* (‘also’, pre-accenting) or *-ma]de* (‘even’, 1st mora accented) as in (1), as compared to “unmarked” ones such as *-ga* (NOM.) or *-kara* (ABL.).

(1)	<i>-ga,</i>	<i>-]mo</i>	<i>-kara</i>	<i>-ma]de</i>
<i>kaze</i> ‘wind’	<i>kaze-ga</i>	<i>kaze-]mo</i>	<i>kaze-kara</i>	<i>kaze-ma]de</i>
	HHM	HHL,HFL	HHMM	HLLL, HFML
<i>sakana</i> ‘fish’	<i>sakana-ga</i>	<i>sakana-]mo</i>	<i>sakana-kara</i>	<i>sakana-ma]de</i>
	HHMM	HLLL, HFLL	HHMMM	HLLML, HFMMM

A production study was carried out to investigate the phonetic realization (in f_0) and variation of FR in relation to the conditioning environments.

2. Methods The f_0 contour patterns are examined for the two shiki types in the Shiramine dialect, kakoo-shiki and *heishin-shiki* (high flat pattern) and accented words in two “marked” conditions, before either *-]mo* or *-na]ra* (‘in case’), and in two “unmarked” conditions, before either $-\phi$ (no particle) or *-o* (ACC.). Two representative speakers of the Shiramine dialect (a female, born in 1924 and a male, 1933) provided the speech materials, producing 12 nouns (2- and 3-mora, native vocabularies) six times each in a frame sentence.

3. Results and conclusions Comparison of f_0 contour patterns confirms FR: f_0 fall tends to be steeper before *-mo* and *-nara*, as compared to *-o* and $-\phi$. Furthermore, the onset of the steep f_0 fall is earlier in the *-mo* condition, as suggested in (1). While this is reminiscent of displacement of f_0 peak due to tonal crowding (e.g., Arvaniti et al., 2006), more consistent pattern is that the f_0 contour of an entire word is realized in a higher range in the “marked” conditions: this pitch range boost is observed across all the accent and shiki types, resulting in steeper f_0 fall for all the cases. The primary source of FR thus appears to be the effect of this f_0 range expansion, owing to a prosodic prominence due to a stronger semantic function of marked bound morphemes, akin to *Semantic Boost* known for Tokyo Japanese (Kubozono, 1993). Given the recognition of FR in the previous studies, this sub-phonemic variation appears to be perceptually salient on kakoo-shiki, presumably because the effect makes the shallow f_0 fall of this shiki type sound distinctly steeper, which may lead to “phonologization” as a lexical accent, explaining the correspondence of kakoo-shiki to a 2nd-mora accented class in some related Japanese dialects (Nitta, 1985, 2010; Uwano, 2006).

References

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