

## *wh* prosody is not focus prosody in Fukuoka Japanese

In studies of the syntax-phonology interface, one fundamental question is: how much syntactic information is available to the phonology? Tokyo Japanese *wh* questions have been influential in this discussion because they have a special prosody that tends to correlate with the scope of the *wh* element (Deguchi & Kitagawa 2002; Ishihara 2002)—a high-pitch boost on the *wh* element, and then a reduced pitch range to the end of the *wh* scope domain. Despite this fact, Tokyo Japanese does not conclusively show that the phonological grammar is sensitive to syntactic [+*wh*] features, because phonologically, Tokyo *wh* prosody is a subcase of focus prosody, and the phonological grammar is already known to have access to focus features cross-linguistically.

**Fukuoka Japanese** is a much stronger case of a language in which the phonology has access to [+*wh*] features from the syntax. Specifically, **this paper demonstrates quantitatively that *wh* prosody and focus prosody in Fukuoka are distinct.** This means that in Fukuoka, ***wh* prosody has an independent phonological mechanism** that does not reduce to focus prosody.

Kubo (1989, 2005) shows that Fukuoka, like Tokyo, has special *wh* prosody that correlates with *wh* scope. Crucially, however, Fukuoka *wh* prosody involves the deletion of all pitch accents from the *wh* element to the end of the *wh* scope domain, creating a large, unaccented phrase, which is realized with a high flat tone. Igarashi (2007) and Kubo (2010) present initial evidence that this is not what Fukuoka focus prosody looks like. This paper takes up that question, providing systematic evidence that post-*wh* contexts induce accent deletion, but post-focus contexts do not.

**The experiment.** Seven young-adult native Fukuoka speakers produced sentences spoken aloud from written prompts. To encourage productions that were as naturalistic as possible, and to control for discourse context (including whether contrastive focus was present), each sentence was presented along with a written description of a scenario. Talkers were asked to produce the target sentence as they would utter it if they were a participant in the scenario described.

Target nouns (**bold underline**) were produced (1a) following neither a *wh* item nor an item under contrastive focus, to serve as a baseline condition; (1b) following a *wh* item, in which context the accent deletion pattern described by Kubo (1989, 2005) is expected; and (1c) following a noun with contrastive focus, in order to compare this context with the post-*wh* context.

- (1) (a) Neutral context: Yoneyama-ga doyoobi **aniyome-o** yonda tte siran'yatta.  
Yoneyama-NOM Saturday s.in.law-ACC called C didn't.know  
'(I) didn't know Yoneyama called (my) sister-in-law on Saturday.'
- (b) Post-*wh*: dare-ga doyoobi **aniyome-o** yonda ka siran'yatta.  
who-NOM Saturday s.in.law-ACC called C didn't.know  
'(I) didn't know who called (my) sister-in-law on Saturday.'
- (c) Post-focus: YONEYAMA-GA doyoobi **aniyome-o** yonda tte siran'yatta.  
Yoneyama-NOM Saturday s.in.law-ACC called C didn't.know  
'(I) didn't know YONEYAMA called (my) sister-in-law on Saturday.'

All target nouns consisted of four short-vowel syllables plus a case particle *-o* ACC or *-ni* DAT/LOC. Half of the target nouns were accented (had a lexically specified pitch accent), and half were unaccented; these accentedness judgments (Hayata 1985) were confirmed by a native speaker.

**Results.** Results from one participant are plotted in figures [A]–[C]. Each point shows one production of one target noun. Filled points (●) are lexically accented nouns, while open points (○) are unaccented nouns. The horizontal axis shows the pitch maximum measured within the target noun; if the noun is accented, this maximum falls on the accented syllable. The vertical axis is a measure of *how much pitch drop* occurs in the word. Specifically, values on the vertical axis show the pitch minimum for the span following the pitch maximum, expressed as the ratio *min/max*. If the word has little or no pitch drop, then the minimum pitch is close to the maximum pitch and so the *min/max* ratio is close to 1.0. A large pitch drop means a large difference between the minimum and maximum pitch, and thus a small *min/max* ratio. Since a pitch accent is realized as a pitch drop, a ratio near 1.0 shows the absence of an overt pitch accent. (In the plots, the line shows the mean ratio for unaccented words (○), and this is always > 0.9.)

In the *neutral context*, by definition, accented nouns should have a large pitch drop (lower ratio), and unaccented nouns should have a ratio near 1.0. Figure [A] shows just this pattern.

In the *wh context*, we expect accent deletion (Kubo 1989): the pitch drop for accented nouns should be no larger than for unaccented nouns. Figure [B] shows just this pattern. (The talker did fail to apply the accent-deletion rule in the four items at the lower right, showing Tokyo-like *wh* prosody in these cases: a high max pitch, > 325 Hz, and a large pitch drop.)

Crucially, the *focus context* in Figure [C] does **not** look like the *wh* context. Aside from three sporadic cases, accent deletion is not systematically applied to accented nouns in the post-focus domain. These accented nouns are either realized with focus-like prosody themselves (high max pitch and large pitch drop), or as is also typical for the post-focus context in Tokyo, with a comparatively low max pitch (< 250) and therefore a smaller pitch drop since the overall pitch range is lower.

In summary, *wh* prosody is distinct from focus prosody in Fukuoka. This finding has implications for our understanding of the syntax-phonology interface: [+wh] features matter to the phonology.

