

**Parameterization of F0 characteristics of register ("Shiki")
in mid-western Japanese dialects**

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Although the ToBI framework (Pierrehumbert & Beckman, 1988) has achieved great success in modeling intonation in various languages, it may not capture the nature of certain aspects of F0 movements very well. This study tries to model dynamic aspects of F0 movement in "pitch register" contrasts observed in mid-western Japanese dialects, called "Shiki" by Japanese dialectologists. An exponential function often referred to as "surge function" (Charles et. al., 2008) [$F0 = intercept + b * time * \exp(-c * time)$] was fitted to the observed F0 data of three speakers from two Japanese dialects with different Accent-Shiki systems (Kan'onji and Kishiwada). The results (Figure 1, next page) show that the two contrastive Shiki types are clearly discriminated in the three-dimensional parameter space [intercept = baseline, b = magnitude of F0-excursion, c = inverse of peak timing]. Further analysis revealed that the two contrastive Shiki types are not reliably differentiated by the baseline. The more reliable predictors of Shiki types are the other two parameters that determine F0 movement within a word. The results are more congenial to a "dynamic" definition of Shiki system by Japanese dialectologists (e.g., Uwano, 1989) and suggest that the analysis of Shiki as an initial F0 target (High vs. Low, Pierrehumbert & Beckman, 1988 for Osaka dialect) should be reconsidered.

References

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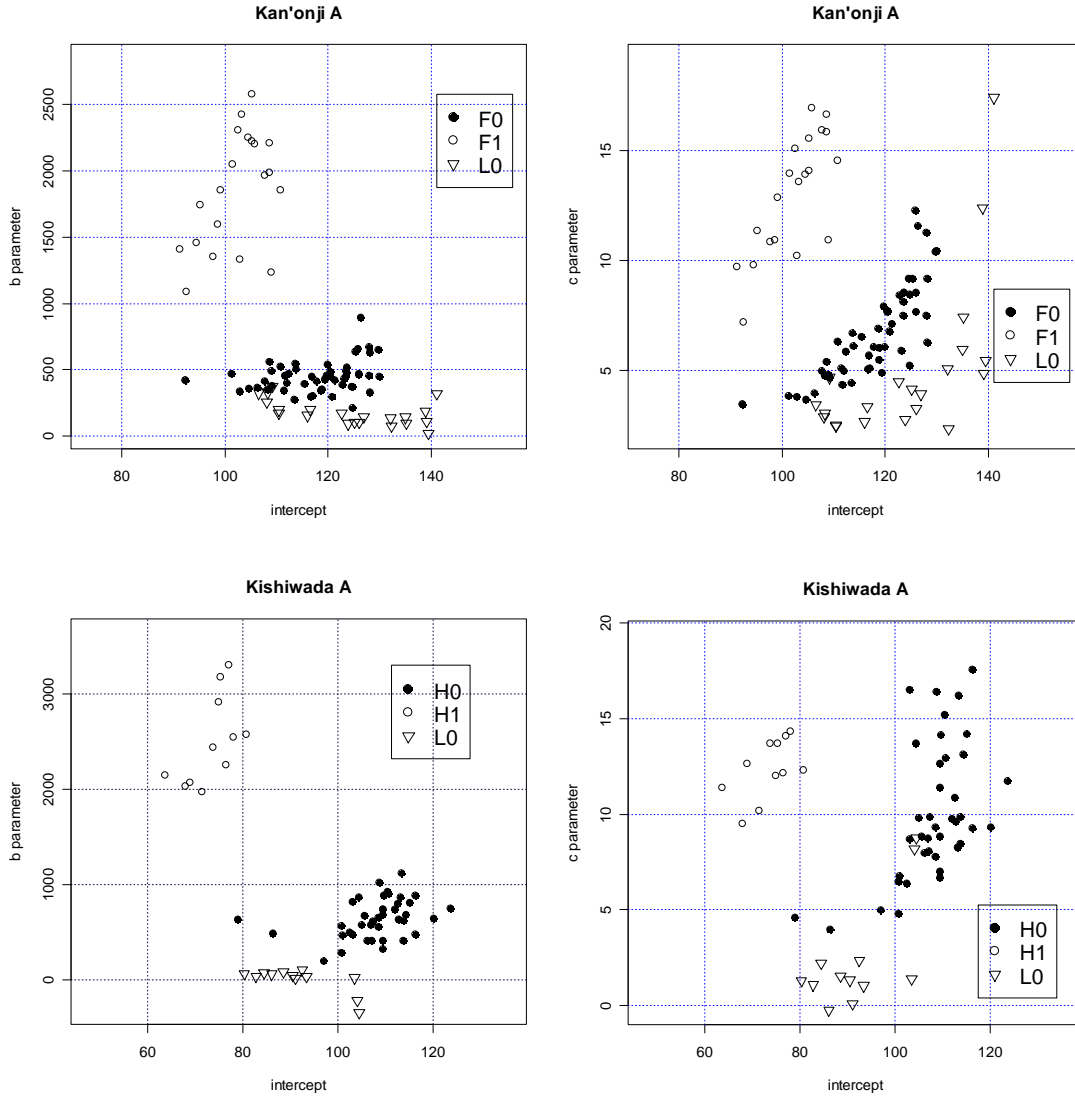


Figure 1: Scatterplots for the three parameters of surge function (left: intercept \times b, right: b \times c). Accent-Shiki categories are indicated by different symbols. The result for one of the three speakers from Kan'onji (upper two panels) and Kishiwada (lower two panels) are shown.

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