Category and Position as Correlates in determining Patterns of Default Accentuation in Japanese: Evidence from Nonce words

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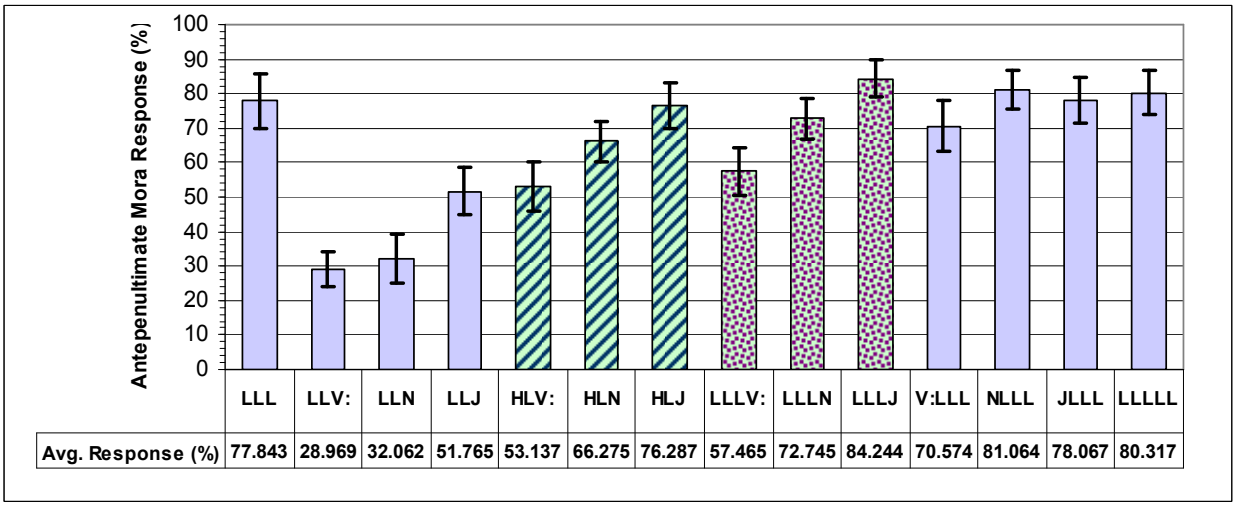
BACKGROUND: Accentuation in Japanese loanword phonology has been an area of controversy. Previous linguists such as McCawley (1968) have suggested a traditional mora-based generalization: loanword accentuation in Japanese has a basic default pattern on the syllable containing the antepenultimate mora; while others claim that Japanese loanword accentuation follows the Latin stress rule (Kubozono 2002a). More recently however, Shiozaki (to appear) carried out a nonce word experiment observing preference for the pre-antepenultimate mora accent for word-final /LLH/ syllable sequence but interestingly, the antepenultimate mora accent for word-final /HLH/ syllable sequence. 'L' and 'H' denote light and heavy syllables respectively. In relation to word-final heavy syllables and accent placement, Kubozono (2004) proposes a positional weight neutralization theory whereby depending on the type of word-final heavy syllable a sequence takes, the distinction between a heavy syllable and a light syllable is "neutralized," thus behaving more like a word-final light syllable in terms of accent placement. This positional weight neutralization is more likely to occur for word-final long vowels (V:) than moraic nasals (N) or diphthongs (J).

METHOD: The aim of this nonce word experiment is to observe (i) where accent is preferred in Tokyo Japanese; on the antepenultimate mora or the pre-antepenultimate mora; and (ii) whether the type of word-final heavy syllable—long vowel (V:); nasal (N); diphthong (J)—influenced accent placement depending on the position they appeared in the word. A perceptual experiment using 6 different types of syllabic structures with 34 Japanese subjects was conducted. Subjects were to use their native intuition on the nature of where the accent falls. Heavy syllables (H) were generated corresponding to the type of word-final heavy syllable—long vowel (V:); nasal (N); diphthong (J)—e.g.: HLV: /boN.pa.zii/; HLN /boN.pa.ziN/; HLJ /boN.pa.zoi/; all tokens were presented randomly in *katakana* orthography, avoiding any forms that resembled an existing word in Japanese; presented a form of reduplication; or allowed potential instances of vowel devoicing and/or epenthesis. The task of the subjects was to listen to each set of nonce words and mark the choice which sounded more natural to their ears.



	LLL	LLV:	LLN	LLJ	HLV:	HLN	HLJ	LLLV:	LLLN	LLLJ	V:LLL	NLLL	JLLL	LLLLL
Avg. Response (%)	77.843	28.969	32.062	51.765	53.137	66.275	76.287	57.465	72.745	84.244	70.574	81.064	78.067	80.317

Figure 1: Average antepenultimate mora accent responses observed for each stimuli type across subjects (Word-final long vowels (V:); nasals (N); diphthongs (J)—compared; Error bars indicate 95% CIs).

EXPERIMENT RESULTS: The results obtained in the experiment indicate that subjects preferred the antepenultimate mora accentual pattern with the exception of word-final **Ĺ**LH sequence (a mean pre-antepenultimate response of 70%). Furthermore, an increasing preference for the antepenultimate mora accent—in the order of V**:** « N « J—was observed for word-final heavy syllable sequences: H**Ĺ**V**:** (53%); H**Ĺ**N (66%); H**Ĺ**J (76%); LL**Ĺ**V**:** (58%); LL**Ĺ**N (73%); LL**Ĺ**J (84%). A similar hierarchy was also detected for /LLH/ word-final sequences, where I noted a stronger preference for the antepenultimate mora accent in the LLJ sequence (52%) than in the LLV**:** and LLN sequences (29% and 32% antepenultimate mora accent respectively). The 3-mora /LLL/ and the 5-mora /V**:**LLL/; /NLLL/; /JLLL/; and /LLLLL/ word-final sequences were controls, which predictably indicated the preference for the antepenultimate mora accent—70%; 81%; 80%; 80% respectively.

CONCLUSION: Overall the experimental results indicate the default accentuation in Japanese to be on the syllable containing the antepenultimate mora, with the exception of the /LLH/ word-final sequences. Furthermore, I observed a close correlation between the type of heavy syllable and the position in which it appears, to have a significant effect on accent placement to varying degrees—V**:** « N « J word-final antepenultimate mora accent hierarchy. This leaves us with 2 remaining questions: (i) why different types of heavy syllables show different degrees of preference for the default accent in Japanese to be on the syllable containing the antepenultimate mora accent and (ii) what factors contribute to the pre-antepenultimate mora accent for /LLH/ but not the /LLLH/ word-final sequence? One approach to the former question is in relation to the sonority scale—the idea that the more sonorous a segment is in word-final position, the more it attracts accent on to the syllable containing the antepenultimate mora. This accounts for why we observe more antepenultimate mora responses for diphthongs than nasals but not for long vowels. A possible explanation is due to the fact that diphthongs and moraic nasals involve contrastive vocalic qualities, where μ_1 and μ_2 of a rime are not identical. Since long vowels lack this contrast, they may be perceptually less salient due to perceptual adaptation. I postulate that the correlation between category and position in accent placement is possibly due to the complex interaction of sonority-sensitive rime scales and Japanese speakers' psychoacoustic perceptual adaptability of these rimes. Word-final heavy syllables showing variable degrees of preference for the antepenultimate mora accent is reminiscent to the notion of prominent positions attracting stress/accent. However, an interesting twist is that prominent syllables attract an accent onto the preceding adjacent syllable rather than onto themselves, presumably due to the effect of NONFINALITY (Prince & Smolensky 1993). Finally, one way to approach the second question—(**Ĺ**L)H vs. LL(**Ĺ**)H—addressed above is to speculate that default accentuation or foot construction in Japanese is bidirectional. How to formally implement the experimental results obtained, especially in optimal theoretic terms, is a challenging and interesting topic for future theory.

Reference: **[1]** Gordon, M. (2002) A Phonetically-driven Account of Syllable Weight. *Language 78:* 51-80. [also in *UCLA Working Papers in Phonology* 2 and available at http://www.linguistics.ucsb.edu/faculty/gordon/pubs.html]. **[2]** Hayes, B. (1995) Metrical Stress Theory: Principles and Case Studies. University of Chicago Press. **[3]** Katayama, M. (1998) Optimality Theory and Japanese loanword phonology. Doctoral dissertation, University of California, Santa Cruz. **[4]** Kubozono, H. (2002a) Syllable Weight and Japanese Accent. *The Proceedings of Linguistics and Phonetics 2002*. Urayasu, Japan: Meikai University. **[5]** Kubozono, H. (2002b) Temporal Neutralization in Japanese. In: Gussenhoven, C., & N. Warner (eds.) Papers in *Laboratory Phonology* 7: 171-201. Berlin: Mouton de Gruyter. **[6]** Kubozno, H. (2004) Weight Neutralization in Japanese phonology. *Journal of Japanese Linguistics 20*: 51-70. **[7]** McCawley, J. D. (1968) The Phonological Component of a Grammar of Japanese. *The Hague*: Mouton. **[8]** Prince, A., & P. Smolensky (1993; revised 2004) Optimality Theory: Constraint Interaction in Generative Grammar. Malden, MA, and Oxford, UK: Blackwell. [Available on Rutgers Optimality Archive, ROA-537]. **[9]** Shiozaki (to appear) Patterns of Default Accentuation in Japanese: Evidence from Nonce words. MITWPL: from Proceedings of FAJL4