

# A SYLLABLEBASED GENERALIZATION OF JAPANESE ACCENTUATION

Haruo Kubozono

Dept. of Linguistics, Kobe University

## ABSTRACT

One of the major findings of the recent linguistic research on Japanese is that the syllable plays a pivotal role in a variety of phonological and morphological phenomena in the mora-based prosodic system of this language. This paper attempts to reinforce this argument by proposing a significant generalization of Japanese accentuation in terms of 'syllable weight', an idea that each syllable has a certain weight according to its phonological configuration. Specifically, this analysis reveals that Japanese accentuation is strikingly similar to that of Latin and many languages with a Latin-type accent system, e.g. English. Moreover, a sociolinguistic analysis of the accentual changes currently in progress demonstrates that Japanese accentuation is becoming increasingly similar to the Latin-type accent system, where the syllable plays a primary role.

## 1. TRADITIONAL ANALYSIS

### 1.1. Japanese Loanword Accent

The traditional typology proposed by Trubetzkoy (1969) classifies Japanese as a typical 'mora language' as opposed to a 'syllable language'. The conception of the mora as an indispensable unit in Japanese can be supported by a wide range of linguistic and psycholinguistic evidence (see Kubozono, forthcoming, for a summary). For example, spontaneous speech errors exhibit some peculiar patterns such as those in (1) which would only be accounted for by positing the mora as a basic behavioral unit of description (Kubozono 1989). In (1) and the rest of this paper /·/ and /··/ represent mora and syllable boundaries, respectively. All syllable boundaries are mora boundaries by definition, although not vice versa.

- (1) a. a.ra.·bu.·zi·n > a.ra.zi.bu·n 'Arabic'  
b. su.tei·syon· > su.te·n·syon ' (railway) station '

The mora plays a crucial role in purely phonological phenomena, too. Loanword accentuation in Tokyo Japanese, for example, has been formulated as in (2). This rule relies on both of the two prosodic units, mora and syllable: The mora plays a primary role as a unit of phonological distance, whereas the syllable serves a secondary role as the bearer of the accent (McCawley 1978).

- (2) Traditional loanword accent rule:

Place an accent on the syllable containing the antepenultimate mora.

Some examples illustrating this rule are given in (3), where accented syllables are capitalized for the sake of clarity. (3a) gives instances where an accent falls on the antepenultimate mora, i.e. the third mora from the end of the word; for example, the word *ku.ri.SU.ma.su* 'Christmas' is accented on *SU*. If the antepenultimate mora does not contain a syllable nucleus as in (3b), or as in the word *wa.SI-n.to-n* 'Washington', the accent moves on to the fourth mora from the end of the word, or onto the nucleus of the syllable which contains the antepenultimate mora.

- (3) Japanese loanwords and their accent

- a. ku.ri.SU.ma.su 'Christmas'  
baa.BE.kyu·u 'BBQ'  
TO.ma.to 'tomato'  
HA.wai 'Hawaii'  
b. wa.SI·n.to·n 'Washington'  
MYA·n.maa 'Myanmar'  
RO·n.do·n 'London'

It is important to emphasize here that the loanword accent rule in (2) is not a rule borrowed from English or any other language. It is a native Japanese rule as evidenced by the accentuation of *ku.ri.SU.ma.su* 'Christmas', *wa.SI-n.to-n* 'Washington', and many other words whose accentuation in Japanese is different from that of the same word in their source language. The native nature of the loanword accent rule in (2) has been further borne out by some recent studies (e.g. Kubozono and Ohta 1998). These studies have shown that the accent rule in (2) is not restricted to loanwords, but it accounts for the basic accentual structure of other types of word, i.e. native Japanese and Sino-Japanese words. In this sense, the rule in (2) represents an unmarked accent rule of Japanese nouns in general.

### 1.2. Latin Accent

The accent rule of Classical Latin is generally formulated as in (4) (Hayes 1995). It is exemplified in (5).

- (4) Place an accent on the penultimate syllable if this syllable is heavy (CVV or CVC), and on the antepenultimate syllable if it is light (CV).

- (5) a. roo.MAA.nus ‘Romans’  
       for.TUU.na ‘fortune’  
       a.lex.AN.der ‘Alexander’  
       b. PO.pu.lus ‘people’  
       IN.te.grum ‘perfect’

According to this rule, the basic location of the accent is determined by syllable count so that it falls either on the penultimate syllable as in (5a) or on the antepenultimate syllable as in (5b). However, the final docking site of the accent is determined by the weight of the penultimate syllable: it attracts an accent if it is heavy enough, and it lets the accent move to the immediately preceding syllable in other cases. Thus the accent rule itself is sensitive to the mora structure as well as the syllable structure of the word.

It is wellknown that the Latin accent rule in (4) applies not only to Latin but to many other languages as well. According to Hayes (1995), it accounts for the basic accentuation of English (nouns) and some other languages historically related to Latin. Some examples from English are given in (6). The words in (6a) are accented (stressed) on the second syllable from the end of the words, just like the words in (5a), whereas the words in (6b) are like those in (5b) in attracting an accent on the antepenultimate syllable.

- (6) a. a.GEN.da, ap.PEN.dix, ho.RI.zon, dip.LO.ma  
       b. RA.di.o, BAL.co.ny, I.vo.ry, MEL.o.dy

A more interesting aspect of the Latin accent rule in (4) is that it also applies to many languages including Arabic and Hawaiian which cannot be related to Latin or English in any way. What this suggests is that the Latin rule in question is not a rule specific to a certain language or language group, but is a rather general accent rule widely observed in natural languages.

We will see in the next section that the Japanese accent rule in (2) also has strikingly similar contents to the Latin rule in (4). The key to this insight is to reanalyze the Japanese rule in terms of syllable weight, with more attention to the syllable structure of words.

## 2. SYLLABLEBASED REANALYSIS

Having seen the traditional analyses of Japanese and Latin accentuation, let us now consider the ways in which syllable and word accent interact in Japanese. Japanese generally permits two syllable types in terms of syllable weight: Light and Heavy. Light syllables are monomoraic syllables containing a short vowel and no coda consonant, i.e. CV (e.g. *te* ‘hand’). Heavy syllables, by contrast, are bimoraic and fall into two types, CVV (*kai* ‘meeting’, *kaa* ‘car’) and CVC. Japanese permits up to one consonant in the coda position, and this consonant counts as one mora, whether it is an obstruent or a nasal: e.g. *gak.koo* ‘school’, *gan* ‘cancer’. Hence, CVC syllables are phonologically as long as CVV syllables, i.e. they are both bimoraic.

The Japanese loanword accent rule in (2) and the Latin accent rule in (4) look quite different and seem to have very little in common. However, a new analysis invoking the notion of syllable weight defined above reveals that these two rules share a basic structure. Under this new analysis, the rules in (2) and (4) will produce the outputs in (7) and (8), respectively: ‘H’ and ‘L’ stand for heavy (bimoraic) and light (monomoraic) syllables, respectively, and # denotes a word boundary. The word accent, which is phonetically realized as an abrupt drop in pitch, is marked by an apostrophe placed immediately after the accented syllable.

- (7) a. ...LH'L#    b. ...LH'H#    c. ...HH'L#    d. ...HH'H#  
       e. ...L'LL#    f. ...LL'H#    g. ...H'LL#    h. ...HL'H#
- (8) a. ...LH'L#    b. ...LH'H#    c. ...HH'L#    d. ...HH'H#  
       e. ...L'LL#    f. ...L'LH#    g. ...H'LL#    h. ...H'LH#

Comparison of (7) and (8) uncovers the basic similarity between the Japanese and Latin accent rules. Namely, it can now be seen that the two rules yield identical results in six out of the eight phonological contexts. In words ending with a sequence of heavy syllables, for example, both (2) and (4) yield one and the same output, with an accent on the penultimate heavy syllable: compare (7b/d) with (8b/d).

Seen conversely, the Japanese and Latin accent rules make different predictions in only two out of the eight environments. These are in (f) and (h), where the words end with a lightheavy sequence. In these contexts, the Japanese rule places an accent on the penultimate light syllable before the final heavy, e.g. *bi.TA.min* ‘vitamin’, *kuu.DE.taa* ‘a coup’, whereas the Latin rule somehow disfavors this accent location and puts an accent one syllable leftwards.

In sum, although the Japanese accent rule in (2) and its Latin counterpart in (4) have been formulated in quite different ways, an analysis invoking the notion of syllable weight reveals that these two rules have much in common. Namely, they yield identical effects in most, if not all, of the phonological contexts. This similarity can be understood if and only if the Japanese rule is reinterpreted in the light of syllable weight, or the weight of the syllable as defined by the mora.

## 3. LEXICAL VARIATION

In the preceding section we have seen that a syllable-based reanalysis of the Japanese loanword accent enables us to understand the basic similarity between Japanese and Latin accentuation. However, their similarities do not stop here. The same syllable-based reanalysis unveils some more interesting similarity between the two rules.

My own analysis of the current accent variation in Tokyo Japanese demonstrates that the language exhibits a considerable degree of variation in the two phonological contexts where the two rules make different predictions, i.e. (7/8f) vs. (7/8h) (see Katayama 1998 for independent evidence for the same variation). More interestingly, the variations in question are

observed between the traditional Japanese patterns in (7f, h) and the Latin patterns in (8f, h). Thus loanwords in (9) exhibit the traditional accent patterns illustrated in (7f, h), whereas those in (10) show the Latin-type patterns described in (8f, h).

- (9) a. ...LL'H# i.E.men 'Yemen'  
       bi.TA.min 'vitamin'  
       e.su.KI.moo 'Eskimo'  
   b. ...HL'H# kan.GA.ruu 'kangaroo'  
       baa.BE.kyuu 'BBQ'
- (10) a. ...L'LH# TO.ro.fii 'trophy'  
       A.ma.zon 'Amazon'  
       TE.ne.sii 'Tennessee'  
   b. ...H'LH# IN.ta.byuu 'interview'  
       BAA.ku.ree 'Berkeley'

Not surprisingly, there are many words including those in (11) whose accentuation displays a synchronic variation. Again, we observe a variation between the traditional patterns in (9) and the Latin-type patterns in (10).

- (11) a. ...LLH#  
       re.BA.non vs. RE.ba.non 'Lebanon'  
       do.RA.gon vs. DO.ra.gon 'dragon',  
       e.ne.RU.gii vs. e.NE.ru.gii 'energy'  
   b. ...HLH#  
       myuu.ZI.syan vs. MYUU.zi.syan 'musician'  
       en.DE.baa vs. EN.de.baa 'Endeavor'  
       kuu.DE.taa vs. KUU.de.taa 'coup'  
       han.GA.rii vs. HAN.ga.rii 'Hungary'

#### 4. SOCIOLINGUISTIC VARIATION

Interestingly, the variations described in (11) can be correlated with a sociolinguistic factor. To explore this possibility, I conducted an experiment with fourteen native speakers of Tokyo Japanese. These subjects were asked to pronounce the nine words in (12), which all have the same syllable structure as (11b), i.e. HLH#.

- (12) kuu.de.taa 'coup',                ran.de.buu 'rendezvous'  
       myuu.zi.syan 'musician'      baa.ku.ree 'Berkeley'  
       in.ta.byuu 'interview'        en.de.baa 'endeavor'  
       kaa.di.gan 'cardigan'        ban.ga.roo 'bangalow'  
       pyuu.ri.tan 'Puritan'

The result of this experiment suggests that people belonging to older generations, say, those in their fifties and sixties, tend to use the traditional accent patterns, e.g. *myuu.ZI.syan* 'musician', whereas younger people show a marked tendency towards the Latin-type accent patterns, e.g. *MYUU.zi.syan*. Take the word *en.de.baa* '(Space Shuttle) Endeavor', for example. Subjects in their fifties and sixties all pronounced this word with a medial accent, i.e. *en.DE.baa*. On the other hand, all the younger people pronounced the same word an initial accent, i.e. *EN.de.baa*, although two of them permitted the medial accent alongside this initial accent.

Given this sociolinguistic dimension behind the variations in (11), one might say that the new accent patterns preferred by younger generations do not represent any change in the rule *per se*, but simply a result of word-by-word borrowings from English. This interpretation can be refuted with little difficulty, however, since it fails to account for the accentuation of some words. For example, it fails to explain the initial accent in *MYUU.zi.syan* 'musician' and *EN.de.baa* '(Space Shuttle) Endeavor', which are accented on noninitial syllables in English, i.e. *mu.SI.cian*, *en.DEA.vor*. This allows us to conclude that the younger generations' preference for the new accent patterns in (10) does really represent a rule change rather than sporadic lexical borrowings.

Seen from a historical perspective, the lexical variations between (9) and (10) as well as the sociolinguistic variations in (11) represent ongoing accentual changes whereby the traditional mora-based rule in (2) seems to develop into the Latin-type rule in (4). In other words, the role of the syllable is becoming more important than ever in the prosodic system of Japanese.

A simple prediction one could make on the basis of this analysis is that the traditional accent patterns in (9) would be replaced entirely by the new patterns in (10) in the future if the accentual changes in question should continue to occur in the same direction. If this should happen, then Japanese accentuation would become substantially identical to that of Latin and English, which is primarily syllable-based.

#### 5. CONCLUDING REMARKS

Japanese is generally labeled a 'mora language' as opposed to a 'syllable language'. While there is no doubt about the role and the reality of the mora in Japanese, it remains largely unanswered what role the syllable plays in the same linguistic system. With this background, this paper has proposed a new analysis of Japanese accentuation invoking the notion of 'syllable weight', by which the two prosodic units, the syllable and the mora, are integrated into a single schema. This analysis provides several interesting insights into the nature of Japanese accentuation.

First, it unveils the basic similarity between the Japanese loanword accent rule and the Latin-type accent rule. Although the two rules have been formulated in different ways, they actually yield remarkably similar effects if reinterpreted in the light of syllable weight. Moreover, the same analysis helps to understand the general linguistic nature of the synchronic lexical variations and the ongoing accentual changes taking place in contemporary Japanese. Specifically, contemporary Japanese exhibits striking lexical and sociolinguistic variations in the two phonological contexts where the Japanese and the Latin rules yield different outputs. And these variations are defined between the patterns predicted by the Japanese rule and those predicted by its Latin counterpart.

As the loanword accent rule largely accounts for the

accentuation of native and Sino-Japanese words as well as compound nouns, it follows that the Japanese accent system as a whole is basically similar to the Latin-type accent system and is becoming even more so by way of the sound changes now in progress. This insight can be obtained if and only if one introduces a syllable-based analysis in which the idea of syllable weight is used as a central notion.

All these arguments provide strong evidence that the syllable forms an integral part of Japanese phonology, quite contrary to Pike's (1947) characterization of the unit as simply a 'phonetic syllable'. The arguments developed in this paper as a whole challenge the claim implicitly assumed in the classical phonetic and psycholinguistic literature, namely, that the syllable and the mora are mutually exclusive in a single prosodic system. Our arguments demonstrated, quite contrary to this traditional hypothesis, that both the mora and the syllable are indispensable for generalizing linguistic phenomena in Japanese and, indeed, for understanding their true meanings in the context of general linguistic theory.

## 6. REFERENCES

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