The Accentuation of Three-mora Loan Words in Japanese

由木　美帆

要旨

日本語のカタカナ語のアクセントには規則性があることが指摘されている（Kubozono 1989 等）。しかし、カタカナ三拍語の用例を見ていくと、その中に規則に反する例外をいくつか見つけることができる。本稿では、その反例の理由を考察し、理由付けとして１）母音の無性化と２）カタカナ語のアクセントの日本語化という二つの仮説を立てる。更にアンケートを実施してカタカナ語とひらがな語のアクセントを比較し、二つの仮説の検証を試みる。

【キーワード】the accentuation of loan words, three-mora loan words, devoicing, Japanese native words

1. Introduction

The Japanese language has a great deal of loan words.[1] When words are borrowed into Japanese, the accentuation is altered in many cases.[2] It seems that there are certain rules to account for the accentuation of loan words (e.g. Kubozono, 1989). As far as three-mora loan words are concerned, however, there are some exceptions. This paper will suggest two possible reasons to explain these exceptions: devoicing and adoption as a native Japanese word. In order to demonstrate and support these suppositions, this paper will first describe the accentuation system in Japanese. It will then turn to the issues of the accentuation of loan words, especially those that have three morae. The examples that do not fit in the general rules of the accentuation of loan words will be demonstrated and given possible explanations. An experiment was conducted to examine the rules concerning the loan words and the results of the experiment will also be shown.

2. The Japanese accentuation system

2.1 Characteristics of the Japanese accentuation

The Japanese language consists of a number of words borrowed from other languages.

Historically, a great number of Chinese words have been imported into Japanese. Furthermore, Japanese also has been adopting many new words from other foreign languages. When words are borrowed into another language, the phonetic composition is often altered. In many cases this change is closely related to the sound system of the language that adopts new words. This is also the case of Japanese and the accentuation of foreign words is effected by the Japanese accentuation system when they are adopted.

There are several characteristics of the Japanese accentuation. First, in the Japanese accentuation system, mora plays a crucial role. Tsujimura (1996:65) demonstrates three conditions where a mora can realize.[3]

(1) a. (C)V
b. the first part of a long consonant
c. moraic' /n/

In Japanese each mora in a word is associated with a specific pitch (high pitch and low pitch). Therefore, pitch changes occur at the mora level.

Second, the pitch pattern of the entire word is predictable given the location of the accent of a word. According to McCawley (1968), the accent is the place where the pitch falls. Moreover, there is a rule called Initial Lowering Rule by Haraguchi (1977) stating that the pitch of the first mora of the word is low unless the accent is placed on that mora. Given these generalizations, the pitch pattern of a word should be predictable.

Third, the concept of syllable also plays a role in the Japanese accentuation system. McCawley (1978) classifies Japanese syllables into two types with respect to its internal composition: short syllables, which are made up of one mora, and long syllables, which consist of two morae. Kubozono (1989:250) describes that long syllables do not consist of two morae of equal status, but are sequences of a 'syllabic mora', which can form a (short) syllable on its own, and a 'non-syllabic mora', which cannot constitute a syllable by itself. This is summarized in (2).

(2) a. short syllable (one-mora syllable) (C)V *te* 'hand'
b. long syllable (two-mora syllable)
(a syllabic mora + a non-syllabic mora, /J/, /R/, /N/, or /Q/)
(C)V +V *kii* 'key'
(C)V +C *ten* 'point'

Kubozono (1989:254) represents non-syllabic morae using the conventional capitalized letters, /J/, /R/, /N/, and /Q/. According to Kubozono, /J/ and /R/ represent the second element of complex vowels (i.e., of diphthongal vowel sequences and long vowels respectively), and /N/ and /Q/ denote the syllable-final moraic nasal and the first element of long consonants respectively. McCawley (1968) gives the following generalization based on the observation of the accentuation of syllable.

(3) A non-syllabic mora cannot place the accent.

2.2 The accentuation rule of loan words

Kubozono (1989) gives the following generalization concerning the accentuation of loan words.

(4) The accentuation of loan words:

The accent is placed on the syllable that contains the antepenultimate mora (Kubozono 1989:250).

(5)

a.	*su to'o bu*,	*su to ra'i ku*,	*sa n do i't ti*
	'heater'	'strike'	'sandwich'
b.	*sya'n pu u*,	*wa si'n to n*,	*e re be'e ta a*
	'shampoo'	'Washington'	'elevator'

Kubozono's generalization is also reasonable from the respect of (3). In (5a), the accent is placed on the third mora from the end of the word. In (5b), on the contrary, the accent is placed on the fourth mora from the end. Since a non-syllabic mora is dependent on a syllabic mora and cannot place the accent, the accent shifts from the third mora to the fourth mora from the end of a word.

3. The accentuation of three-mora loan words

Generalization (4) can apply to a number of examples of the three-mora words as shown in (6).

(6) a. *a'isu* 'ice'
b. *go'rufu* 'golf'
c. *ho'teru* 'hotel'
d. *de'eto* 'date'
e. *ha'ndo* 'hand'
f. *ka'ppu* 'cup'

In (6), the accent is placed on the mora right before the penultimate mora. Since three-mora words do not consist of more than three morae, one can simply say that the accent is put on the first mora. All examples in (6) place the accent on the first mora.

However, one may find some exceptions as demonstrated below.

(7) a. *suki'i* 'ski'
b. *suta'a* 'star'
c. *suto'a* 'store'
d. *huri'i* 'free'
e. *turi'i* 'tree'

(8) a. *garasu* 'glass'
b. *koppu* 'cup'
c. *penki* 'paint'
d. *botan* 'button'

In (7), the words receive the accent on the second mora and the words are unaccented in (8). These examples do not seem to be consistent with rule (4).

3.1 Devoicing

When the words in (7) are examined, one can find some similarities between each word. First, the consonants of the first mora are voiceless. In (7), the first consonants are /s/, /h/ and /t/, and all of them are voiceless sounds. Second, the consonants of the second mora tend to be voiceless or /r/. Third, the vowel between the consonants of the first and second mora tends to be one of the high vowels /i/ and /u/.[4] Considering the above conditions, one might make an assumption that devoicing occurs on the vowel of the first mora and, at the same time, it prevents the accent from being assigned on the first mora. Imada (1989:106)

supports this supposition stating that the devoiced morae do not often have the accent. Moreover, the last syllable tends to include two vowels. Tsujimura (1996:79) states that it is natural to see a syllable consisting of two vowels receiving two distinct pitches. In (7), all the pitch changes occur in the syllables include two vowels. Therefore, one can assume that the accent is shifted to the environment where pitch changes naturally happen.

The other evidence that devoicing prevents the accent from being assigned is found in the similar phenomenon observed in four-mora words. There are some exceptions for Kubozono's geralization (4).

(9) a. ka'kuteru 'cocktail'
b. kya'pitaru 'capital'
c. ne'kutai 'necktie'
d. ta'kusii 'taxi'

If the Kubozono's generalization is applied, the third mora from the end, *ku* and *pi* are supposed to be assigned the accent in (9). However, the location of the accent is shifted to the fourth mora from the end. The possible explanation for this is that devoicing causes the shift. In (9), the vowel of the third mora from the end is located between voiceless consonants /k/, /p/, /s/, /t/ and the vowel is one of the high vowels. Therefore, one can assume that the accent is shifted to the second mora because of devoicing similar to the examples in (7). In addition to this phenomenon, there is another kind of exceptions as observed in (8). This issue will be discussed in the next section.

3.2 The accent of Japanese native words

Several books declare that the location of the accent depends on the group that the word belongs to, such as groups of native words, Sino-Japanese words and loan words (e.g. NHK, 1966; Tashiro, 1975). There are some tendencies concerning Japanese native words. NHK (1966:47 in *Kaisetsu*) states that as for three- and four-mora Japanese native words it is common that there is no accent located on any mora.

As shown in (8), there is another exception to the generalization (4). In (8), the words are unaccented. When the examples in (8) are examined concerning original languages, one can find an interesting fact.[5]

(8)' a. *garasu* ← glas [Dutch]
b. *koppu* ← kop [Dutch]
c. *penki* ← pek [Dutch]
d. *botan* ← botao [Portuguese]

The words in (8) are borrowed from either Dutch or Portuguese. According to Katou et al. (1989), the Japanese language first imported words from China. Then it started adopting foreign words from Dutch, Portuguese and Spanish in the 16th and 17th century. Finally, the words originated from the other languages such as English, German, French, Italian, Russian have been flowed into Japanese since the end of the *Edo* period and the beginning of the *Meiji* era.[6] Therefore, the following assumption can be made. Historically, the words in (8) have been in the Japanese lexicon for a long time and may be recognized in the category that is close to the Japanese native words. Consequently, the accent pattern might have been become similar to the Japanese one.

Other than the case above, there are some English words that have no accent.

(10) a. *arumi* 'aluminum'
b. *piano* 'piano'
c. *ramune* 'lemonade'

The examples in (10) are not originally from Dutch or Portuguese but they do not receive the accent. One may assume that there are some similarities between Japanese native words and the words in (10). Kubozono (1998:104) describes that there is a tendency that the accentless phenomenon often occurs to four-mora loan words with a short syllable foot at the end and provides with the following examples.[7]

(11) *Betonamu*, *Daiana*, *Monariza*, *tonneru*
'Vietnam' 'Diana' 'Mona Lisa' 'tunnel'

Given the examples in (11), one can suppose that the phonetic internal composition of these loan words is close to the Japanese native words. The characteristic that both these loan words and typical Japanese native words have could be that the words consist of short syllable foot at the end. This assumption can well apply to the words in (10).

4. Experiment

4.1 Suppositions and the research procedure

From the analysis of the accentuation of three-mora loan words, one can make the following suppositions. First, there is a tendency of the accentuation pattern depending on the category to which the word belongs. Second, it seems that devoicing avoids the accent from being assigned. These suppositions are summarized as follows:

(12) a. The accent of three-mora loan words tends to be placed on the first mora. Japanese native words tend to be pronounced accentless.
b. When the devoiced mora is accented, the shift of the accent occurs.

To examine the validity of these suppositions, the following experiment was conducted.

A written questionnaire was provided with eleven Japanese native speakers inquiring the pitch changes of three-mora and four-mora words.[8] To examine the differences of the accentuation between loan words and native Japanese words, the words in katakana and hiragana were provided. There were 16 words (8 for katakana and hiragana) in the questionnaire and they were created for this experiment. There were five three-mora words, *imasi, iroku, kabun, kurii, sukoo,* and three four-mora words, *antera, tomiina, tominan*. Four-mora words were distractors and were excluded from the results of this paper. Each word was given a context and used in a sentence. Each sentence was placed randomly.

For example, a sequence of sound *imasi* was used in the following contexts and the subjects were asked to judge the pitch of accent (Low or High).

(13) a. a loan-like word (in katakana)
（イ　マ　シ）って都市はギリシャにあるっけ？
(I ma si)tte tosi-wa Girisya-ni arukke?
'Is there a city called *Imasi* in Greek?'
b. a Japanese native-like word (in hiragana)
日本料理店で（い　ま　し）が出てきた。
Nihon ryooriten-de (i ma si)-ga detekita.
'They served *imasi* at the Japanese restaurant.'

In (13a), the word *imasi* is written in katakana. It is given the context that *imasi* is a name of

a city abroad. Therefore, the word *imasi* in katakana is supposed to be a loan word. In (13b), on the contrary, the word *imasi* is written in hiragana and it is a name of a Japanese food served at a Japanese restaurant. It should be supposed to be a Japanese native word. If the first supposition in (12) is correct, the accent should be placed on the first mora of the word in katakana. On the other hand, the word in hiragana should not have any accent.

To prove the validity of the second supposition in (12), the sequences of sounds *sukoo* and *kurii* were included. The high vowel /u/ of the first *mora* of *sukoo* is between the voiceless sounds /s/ and /k/, and it satisfies the condition where devoicing occurs. *Kurii* was also included in the questionnaire because there are the examples where the accent shift happens when the vowel is between a voiceless consonant and /r/. Additionally the last mora is a non-syllabic mora, which a pitch change often occurs. If the accent is put on the second mora not the first one, the results support the second supposition.

4.2 Results

The results of the experiment concerning the accentuation of three-mora words are shown in the charts below.

Chart 1. The accentuation of katakana three-mora words

	○○○	○○’○	○’○○
imashi イマシ	45.5	0.0	54.5
iroku イロク	54.5	9.1	36.4
kabun カブン	0.0	0.0	100.0
kurii クリー	9.1	9.1	81.8
sukoo スコー	9.1	9.1	81.8

(%)

Chart 2. The accentuation of Hiragana three-mora words

	○○○	○○’○	○’○○
imashi いまし	72.7	0.0	27.3
iroku いろく	81.8	0.0	18.2
kabun かぶん	63.6	0.0	36.4
kurii くりい	100.0	0.0	0.0
sukoo すこう	45.5	18.2	36.4

(%)

As far as the differences between the words in katakana and hiragana are concerned, one may find the results interesting. There is an obvious tendency that no mora is accented concerning hiragana words as shown in chart 2. On the contrary, one can elicit two tendencies for katakana words in chart 1. *Imasi* and *iroku* have the tendency to be assigned no accent while *kabun*, *kurii* and *sukoo* tend to have the accent on the first mora. *Kabun*, *kurii* and *sukoo* make a good contrast with the equivalents in hiragana that were answered to have no accent. This can prove that loan words tend to have the accent on the first mora while Japanese words tend to be accentless. Considering *imasi* and *iroku*, they have a short syllable foot at the end of each word. It might be considered that they have a similar internal composition to typical Japanese native words. Thus, even though they are written in katakana, there tends to be no accent assigned.

Speaking of the results concerning devoicing, however, they were different from what was expected to some extent. If the assumption is correct, the accent should be shifted from the first mora to the second one. In chart 1, *ku* and *su* are supposed to be devoiced and avoid the accent from being assigned. However, the accent tends to be put on both mora *ku* and *su* and there is no shift of the location of accent. Thus, chart 2 only declares shows that Kubozono's generalization (4) is correct. A possible account for these results is as follows. These two created words in katakana (*kurii* and *sukoo*) might be accepted as unknown katakana words and Kubozono's generalization was applied. The cause of the shift of the accent is that it is difficult to put the accent on the devoiced mora. The subjects might not have been realized the difficulty of putting the accent on the devoiced mora.

5. Conclusion

This paper has examined some rules concerning the accentuation of three-mora loan words. Although Kubozono (1989) demonstrates the generalization on loan words, there are a number of exceptions. The reasons why there are exceptions for the rules have been also discussed and two possible reasons have been suggested. One is that devoicing prevents the accent from being assigned. The other is that some words are adopted as a Japanese native word and provided with the accentuation pattern of native words. Moreover, an experiment was conducted to examine the rules discussed above. The results of the experiment clearly demonstrate that there are different tendencies of the accentuation patterns between katakana and hiragana words. The results do not prove that devoicing causes the shift of the accent and the research methods should be refined. Further research is necessary.

Notes

(1) In this paper loan words refer to the words borrowed from foreign languages except Chinese.

(2) The analysis of accentuation is done based on that of the Tokyo dialect.

(3) C stands for a consonant and V for a vowel.

(4) There are few cases that the vowel is /o/ as in *torai* 'try', but Vance (1987) gives the example in which devoicing occurs to /o/ as in the first mora of *kokoro* and *soko*.

(5) The original languages are demonstrated in NHK (1966).

(6) The *Edo* period: 1600 A.D. – 1868. The *Meiji* period: 1868 – 1912.

(7) A foot refers to a two-mora unit.

(8) The subjects speak the Tokyo dialect. The questionnaire is demonstrated in the appendix.

References

Haraguchi, S. 1977. *The Tone Pattern of Japanese: An Autosegmental Theory of Tonology.* Tokyo: Kaitakusha.

Imada, S. 1989. *Hatsuon [Pronunciation]*. Tokyo: Bonjinsha.

Katou, A. et al. 1989. *Nihongo gaisetsu [A view of Japanese]*. Tokyo: Oufuu.

Kubozono, H. 1989. The mora and syllable structure in Japanese: Evidence from speech errors. *Language and Speech*, 32. pp.249-278.

Kubozono, H. 1998. *Onseigaku・Oninron [Phonetics・Prosody]*. Tokyo: Kuroshio.

McCawley, J. D. 1968. *The Phonological Component of a Grammar of Japanese*. The Hague: Mouton.

McCawley, J. D. 1978. What is a tone language?. In Fromkin, V. (ed.). *Tone: A Linguistic survey*. New York: Academic Press.

NHK. 1966. *Hatsuon accent jiten [the dictionary of pronunciation and accent]*. Tokyo: Nihon housou shuppan.

Tashiro, K. 1975. *Utsukushii Nihongo no Hatsuon [Beautiful Japanese Pronunciation]*. Osaka: Sogensha.

Tsujimura, N. 1996. *An Introduction to Japanese Linguistics*. Malden, MA: Blackwell.

Vance, T. J. 1987. *An Introduction to Japanese Phonology.* New York: SUNY Press.

Appendix

アンケート

次の言葉を次のような文脈の中で使うとしたら、どのようなアクセントで用いますか？アクセントの高低を答えてください。

例）公園で（さ　く　ら）が咲いていた。
L　H　H　　L…低　H…高

(1) 昨日（く　り　い）さんという日本人に会った。
(2) 日本料理店で（あ　ん　て　ら）という魚を食べたよ。
(3) （ト　ミ　ナ　ン）という化学物質が発見された。
(4) 新聞で（い　ろ　く）という日本人についての記事を読んだ。
(5) 北欧の（ス　コ　ー）という街はとても美しい街だ。
(6) 昨日（と　み　い　な）さんという日本人に会った。
(7) 先週（か　ぶ　ん）という居酒屋に行った。
(8) （ア　ン　テ　ラ）って都市はギリシャにあるっけ？
(9) 日本料理店で（い　ま　し）が出てきた。
(10) （ク　リ　ー）という化粧品を使い始めた。
(11) 夏に海外旅行で（イ　ロ　ク）に行くつもりです。
(12) 先週（と　み　な　ん）という居酒屋に行った。
(13) （カ　ブ　ン）という化学物質が発見された。
(14) （ト　ミ　ー　ナ）という化粧品を使い始めた。
(15) 先週日本の（す　こ　う）という漁港でマグロが大量に上がった。
(16)（イ　マ　シ）って都市はギリシャにあるっけ

(myuki@kansaigaidai.ac.jp)