The Influence of the Original Accent on Japanese Loanwords[*]

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1   Introduction

The majority of phonologists have believed that the loanword accent is determined after it is borrowed, without being influenced by the accent of the original foreign word. As phonologists have researched, they have found that the accent of most loanwords is put on the third to last mora, as in *a'.ni.me*. This tendency is known to be one of the most powerful rules in linguistics and is called the antepenultimate mora accent rule (AAR). The rule indicates that the accent of loanwords tends to fall on the syllable that contains the third mora from the end (McCawley, 1968). In addition, Kubozono (1996) points out that most of the accent patterns predicted by AAR are also predicted by the Latin stress rule (LSR), which requires that the accent should be put on the penultimate syllable if it is heavy, and otherwise on the antepenultimate position. Tanomura (1999), on the other hand, argues that loanwords usually preserve the accent of the original foreign language as much as possible rather than follow these rules, as in *a'.ku.se-n.to*. As mentioned above, there is a divergence in opinion between recipient-language-based analyses (AAR and LSR) and source-language-based analysis concerning loanword accentuation. The divergence can be attributed to a lack of consideration for the dates of borrowing. This article argues that more recently borrowed words in Japanese tend to preserve the prominence patterns of their original foreign words, although the traditional analyses are more powerful when the accent of less recently borrowed words is predicted.

The structure of the article is as follows. The second chapter describes how loanword accentuation has been analyzed in Japanese. The chapter summarizes some previous studies on loanword accentuation in Japanese. Concerning the recipient-language-based analyses, some rules and Optimality Theory-based considerations are introduced. Loanword accent is then considered under the assumption that loanwords preserve the prominence patterns from their source languages. The chapter also discusses which prediction is more persuasive. The third chapter examines newly borrowed words and shows that the words are more likely to preserve the accent of original words, while older words are likely to follow LSR. The chapter also demonstrates that loanwords faithfully preserve the information from their source words, not only at the level of segmental adaption, but also at the level of suprasegmental adaption when loanwords are not fully nativized. The chapter suggests that the argument in this work is compatible with Ito and Mester's (1995) analysis about segmental adaption. The fourth chapter investigates whether unfamiliar loanwords are more likely to preserve original prominence patterns. The last chapter summarizes what is discussed throughout the article, focusing on the main findings of this study.

2   Japanese Accents and Loanwords

2.1   *The Definition of Accent*   Before going into detail, the term "accent" should be defined. It means pitch accent, which is realized as an abrupt pitch fall in a word-level property (Kawahara, 2015). In this article, the term does not mean salience in some larger units, such as phrases and sentences, or regional or social varieties in a language. In some languages, the accent of words is fixed, while the accent in Tokyo Japanese is freely distributed (Kubozono, 2008). Depending on the way the accent is realized, languages are

divided into three types: stress accent, pitch accent and tone languages.

In Japanese, the accent is freely distributed and realized as pitch falls, so the language is classified as one of the pitch accent languages. In addition, accent locations may vary among different regional or generational varieties. The accent, however, plays an important role in word recognition even when the locus of the accent does not change the meaning. Cutler and Otake (1999) claim that accentual information in the initial fragments of words helps speakers guess the whole words if they are accented. Japanese words are classified into accented and unaccented words as shown in (1). Unaccented words are pronounced with a relatively flat pitch. In this article, the locus of the accent is denoted by an apostrophe (') if necessary. A zero (^{0}) at the end of words means that the words are not accented.

(1)
a. ha'.si	'chopsticks'		b. ha.si^0	'edge'
c. a'.me	'rain'		d. a.me^0	'candy'

2.2 *Recipient-Language-Based Analyses*   The following two sections, 2.2 and 2.3, summarize previous studies on recipient-language-based analyses. This section introduces McCawley's (1968), Kubozono's (1996, 2006) and Tanaka's (2008) arguments that loanwords have nothing to do with their source languages. McCawley (1968) claims that loanwords follow AAR, while Kubozono (1996, 2006) claims that they follow LSR. Tanaka (2008) further claims that the accent of loanwords is predicted by the Optimality Theory (OT).

2.2.1 *Antepenultimate Accent Rule (AAR)*   To begin with, this subsection considers AAR. McCawley (1968) argues that loanwords in Japanese tend to have their accent on the syllable that contains the antepenultimate mora. According his rule, the accent of words usually falls on the third mora counting back from the end, as shown in examples in (2), while the accent of the word should be moved one mora backward if the third to last mora is a dependent one, such as a syllabic nasal, the first half of a geminate,[1] or the second part of a long vowel[2] or a diphthong,[3] as shown in (3).

(2)
a. a'.ni.me	'cartoon'		b. ba'.na.na	'banana'
c. su.to'.re.su	'stress'		d. re.pu'.ri.ka	'replica'

(3)
a. si'-n.bo.ru	'symbol'		b. ka'-p.pu.ru	'couple'
c. pe'-e.pa-a	'paper'		d. sa'-i.re.n	'siren'

Counterexamples, however, can be found easily. The words in both (4) and (5) do not follow AAR, which has been discussed above. These examples are divided into two types. The words in (4) have their accent on the fourth mora from the end, while the words in (5) have their accent on the fifth mora from the end. Every word in (4) and (5) has two moras in the last syllable.

(4)
a. kya'.pu.te-n	'captain'		b. a.ka'.de.mi-i	'academy'
c. ka'.ro.ri-i	'calorie'		d. ne'.ku.ta-i	'tie'

(5)
a. ma'-a.ga.ri-n	'margarine'		b. bu'-u.me.ra-n	'boomerang'
c. ta'-n.ba.ri-n	'tambourine'		d. a'-i.ro.ni-i	'irony'

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[1] Syllabic nasals and the former part of geminates are consonants that occur in the coda of syllables, and each of them is counted as one mora in Tokyo Japanese.

[2] Japanese has five long vowels, which are [aː], [iː], [ɯː], [eː] and [oː].

[3] Not all of the two sequent vowels behave as diphthongs. In general, if a mouth moves toward closing directions when two sequent vowels are pronounced, they are called a diphthong. According to Tanaka (2015), Japanese has four diphthongs: [ai], [au], [oi] and [ae].

2.2.2 *Latin Stress Rule (LSR)*   In the last section, AAR has turned out not to be powerful enough, so this subsection introduces another rule. Kubozono (1996, 2006) suggests that LSR can be applied to Japanese loanwords. The rule requires that the accent be put on the second to last syllable when it is heavy, i.e., has more than two moras, while it is put on the third last syllable when it is light, i.e., has only one mora. The rule can derive the accent patterns as in (6). In the following discussion, L and H stand for a light syllable and a heavy syllable, respectively, and the number sign (#) represents a word boundary. According to the rule, the examples in (4) and (5) are no longer counterexamples. LSR can predict the accent of words in (4) by (6)-c and (5) by (6)-g. When the accent patterns are compared with those gained from AAR in the last section, as shown in (7), (6)-c and (6)-g show different accent patterns from those of (7)-c and (7)-g. LSR can correctly predict the accent of the words in (4) and (5).

(6) Predictions by LSR
a. …L'LL#   b. …LH'L#   c. … L'LH#   d. …LH'H#
e. …H'LL#   f. …HH'L#   g. …H'LH#   h. …HH'H#

(7) Predictions by AAR
a. …L'LL#   b. …LH'L#   c. …LL'H#   d. …LH'H#
e. …H'LL#   f. …HH'L#   g. …HL'H#   h. …HH'H#

Some readers may think it a coincidence that words consisting of two syllable structures tend to follow LSR. Kubozono (1996, 2006), however, claims that it is natural to use LSR for analyzing loanword accentuation in Japanese because most of the words in English follow LSR, as shown in (8). Most of the loanwords in Japanese come from English, which is the language that the vast majority of people in Japan study as a foreign language. He also explains that the two-syllable structures discussed above sometimes have two accent patterns or varieties, as shown in (9) and (10). According to Takemura (2008), the younger generation prefers to use the accent pattern that follows LSR, which shows that the way to assign the accent to loanwords is changing gradually.

(8)
a. population   /pɑ.pjə.ˈleɪ.ʃən/   b. movement   /ˈmuːv.mənt/
c. harmony   /ˈhɑːr.mə.ni/   d. environment   /en.ˈvaɪə.rə.nmənt/

(9)
a. a.se'.a-n ~ a'.se.a-n   'ASEAN'   b. i.de.o.ro'.gi-i ~ i.de.o'.ro.gi-i   'ideology'
c. i.ya'.ho-n ~ i'.ya.ho-n   'earphone'   d. sa.hu'.ra-n ~ sa'.hu.ra-n   'saffron'

(10)
a. a.ko-o.di'.o-n ~ a.ko'-o.di.o-n   'accordion'   b. o-o.di'.syo-n ~ o'-o.di.syo-n   'audition'
c. ka-a.di'.ga-n ~ ka'-a.di.ga-n   'cardigan'   d. myu-u.zi'.sya-n ~ myu'-u.zi.sya-n   'musician'

LSR can make predictions that cannot be made by AAR. Words that follow neither AAR nor LSR can be found. For example, the accent patterns of the words on the left side in (11) cannot be predicted by either AAR or LSR. The accent is moved father backward compared with the accent patterns predicted by LSR.

(11)
a. kyu'.ro-t.to ~ kyu.ro'-t.to   'culottes'   b. ku.ra'.si-k.ku ~ ku.ra.si'-k.ku   'classic'
c. cya'.re-n.zi ~ cya.re'-n.zi   'challenge'   d. fi'.a-n.se ~ fi.a'-n.se   'fiancé(e)'

In order to explain the counterexamples, Tanaka (2007) introduces the sonority hierarchy, which is an idea that each sound has different levels of loudness when the sound is pronounced.[4] In his theory, a two-

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[4] According to Tanaka (2015), sounds are divided into several groups. Vowels have the highest sonority and semivowels have the second highest sonority. Liquids follow the semivowels and nasals follow the liquids. Fricatives and affricates

mora syllable is not always considered as heavy because the latter part of the syllable is low in sonority. In other words, when a dependent mora comes after an independent mora, the two moras act as if they were a light syllable, or a dependent mora acts as if it were not there. Using this idea, the accentual variants in (11) can be explained as the article shows their syllable structure in (12). The outlined character (𝕃) represents a heavy syllable which acts as if it were light.

(12)
a. *H'HL (H'𝕃L) ~ HH'L   b. *LL'HL (LL' 𝕃L) ~ LLH'L
c. *L'HL (L' 𝕃L) ~ LH'L   d. *L'HL (L' 𝕃L) ~ LH'L

   Words, like those in (13), that do not seem to follow either of the two rules mentioned above can also be found. The accent of the words is also moved backward, although the discussion above cannot be applied to them because the words do not contain any heavy syllables. Thus, the accent of words which consist of sequences of light syllables is unable to be predicted using these rules. This approach needs to be improved. The following subsection takes a look at a constraint-based analysis.

(13)
a. pa'.ra.so.ru   'parasol'   b. pa'.su.te.ru   'pastel'

2.2.3 *Optimality Theory (OT)*   As it is difficult to predict accent locations by rules, this article needs to look at accentuation from another point of view. This section considers a constraint-based analysis in order to predict accent patterns in the framework of OT. Using the theory, both of the accent patterns (L'LLL and LL'LL) can be explained without any contradiction, and the theory explains why accentual variants exist.
   Not only can OT predict the loanword accent more precisely, but the theory can also explain why recipient-language-based analyses need to count moras or syllables from the end of words, or why the accent tends to fall on antepenultimate moras. Free accent languages universally tend to assign the accent to the most prominent part of the word, but not at the end. The constraint-based analysis gives reasons why the accent should be put where it is. Tanaka (2008) and Labrune (2012) explain why the words in (9) and (10) have two accent patterns. In Tanaka's theory, the accent of words consisting of four or fewer moras is determined by constraints ranked in the order in (14). By following the ranking in (14), all the accent patterns predicted by the rules can be gained. As in Tableau (21), the theory can also give the accent to the words consisting of light syllables found in (13).
   Tanaka (2008) and Labrune (2012) use two kinds of constraints. While the constraints for alignment determine the locus of the accent, the other constraints prescribe how to form feet. PARSEMORA in (15) requires feet. NONFINALITY in (16) prohibits the accent from being put at the end of words. FOOTBINARITY in (17) requires every foot to contain two moras. ALIGNLEFT in (18) and ALIGNRIGHT in (19) require that feet be formed from the left and right respectively. FOOTTROCHEE in (20) requires the left part of feet to be accented.

(14) Ranking for words consisting of four or fewer moras:[5]
PARSEMORA >> NONFINALITY >> FOOTBINARITY >> ALIGNLEFT, ALIGNRIGHT >> FOOTTROCHEE

(15) PARSEMORA: Parse every mora into feet.[6]

(16) NONFINALITY: The head feet of prosodic words must not be final.

(17) FOOTBINARITY: Feet are binary under moraic or syllabic analysis.

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have the second lowest sonority and plosives have the lowest sonority. Syllabic nasals, the former part of geminates, and the latter part of long vowels and diphthongs are less loud than the other sounds in Japanese.
[5] The ranking for words consisting of five of more moras is as follows: ParseMora >> NonFinality >> FootBinarity >> AlignRight >> AlignLeft >> FootTrochee.
[6] Feet are a prosodic unit bigger than syllables and smaller than prosodic words. The feet consist of either two moras or syllables.

(18) ALIGNLEFT: The accented mora is leftmost in prosodic words.

(19) ALIGNRIGHT: The accented mora is rightmost in prosodic words.

(20) FOOTTROCHEE: The head feet are trochaic.[7]

As the theory determines the optimal realization of all the possible candidates by excluding those violating more highly-ranked constraints, the theory sometimes can choose more than one optimal realization when more than two constraints are equally ranked. The tableau for the cases with four moras or fewer is shown in (21). In this analysis, both (21)-a and (21)-c are the optimal realizations, as the two constraints for alignment in (17) and (18) are equally ranked. As it turns out, both of the optimal realizations are possible in Japanese, as shown in (22).

(21) Constraint Tableau for the cases with four moras or fewer (Adapted from Tanaka (2008) and Labrune (2012))

/LLLL/	PARSEM	NONF	F=BIN	ALIGNL	ALIGNR	F=T
☞a. (L'L)LL					**	
b. (LL')LL					**	*!
☞c. L(L'L)L				*	*	
d. LL(L'L)		*!				
e. LL'LL	*!					
f. L(L')LL			*!			

(22)
a. de'.zi.ta.ru (digital)   b. a.si'.su.to (assist)

The OT prediction seems to have been improved a lot. Nonetheless, there are still cases that cannot be predicted by the OT analysis. For example, the words in (23) have their accent on the final syllable even though it is light, and those in (24) have their accent on the penultimate syllable despite the presence of the constraint that prevents the accent from falling on the end of words, i.e., NONFINALITY.

(23)
a. ta.bu'-u 'taboo'   b. ja.pa'-n   'Japan'

(24)
a. a-n.pe'.a 'ampere'   b. ri.pe'.a   'repair'

These examples show that there are limitations on the OT-based analysis presented here. Interestingly, their accent loci match the lexical stress loci in their original English words. That is, the final accent in (23) and the penultimate accent in (24) correspond to the stressed final vowel in the English counterparts. From these examples, it is speculated that some of the loanwords inherit source-language stress/accent loci.

2.3 *Source-Language-Based Analysis*   The last part of the previous section has pointed out that there are accent patterns which cannot be predicted by the rule- and constraint-based analyses. Some of those accent patterns can be predicted by assuming that original accent patterns are preserved. This section is going to look at loanword accentuation by focusing on the preservation of original accent patterns.

2.3.1 *Analysis by Original Accent*   This subsection introduces the argument that loanword accent comes from its source-language prosody. Tanomura (1999) insists that the accent of original words has some influence on loanword accentuation in Japanese by examining words consisting of three or four moras. He

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[7] Trochaic feet are feet consisting of a stressed syllable followed by an unstressed syllable, which is opposite to iambic. The trochaic feet have their accent on the left side.

admits that not all of the loanwords preserve the original accent. He suggests, however, that original accent patterns should be taken into account to some extent, although he does not deny that loanwords in Japanese tend to have their accent on syllables containing the antepenultimate mora. He points out that the accent patterns of some words cannot be predicted by the recipient-language-based analyses that have been discussed in Section 2, but preserve the lexical stress/accent patterns of original words as in (25). The accent pattern of (25)-a and that of (25)-b can also be predicted by the OT analysis presented in Section 2.2, however. All of the examples in this subsection are adapted from Tanomura (1999).

(25)
a. te'.ki.su.to (*te.ki'.su.to)   'text'   b. pi'.ri.o.do (*pi.ri'.o.do)   'period'
c. ko'-n.te.su.to (*ko-n.te'.su.to)   'contest'   d. re'.su.to.ra-n (*re.su'.to.ra-n)   'restaurant'

Lee (1992) argues that long loanwords with more than five moras attract speakers' attention and make them feel that the words are from foreign languages, because native and Sino-Japanese words do not have such long words consisting of a single morpheme. As a result, she insists that native Japanese speakers tend to put the accent on the first mora, where the accent of English nouns usually falls, because most of the native Japanese speakers in Japan study English as their first foreign language. She does not claim that the original prominence patterns influence our loanword accentuation directly. She suggests, however, that speakers' awareness that loanwords originally have their own prominence patterns in their source languages makes them pronounce the words differently from native and Sino-Japanese words.

2.3.2   *Evidence Supporting Original Accent Preservation*   Although the pitch accent patterns of a substantial number of Japanese loanwords may be accounted for by the recipient-language-based analyses, this study argues for Tanomura's (1999) position that the influence of source-language stress/accent patterns on Japanese loanwords is unneglectable, and aims to provide empirical evidence for it. In this section, some consideration is given to the validity of source-language stress/accent patterns affecting Japanese loanword accent patterns. One of the reasons that the majority of the phonologists have tried to analyze loanword accentuation in Japanese without using original accent patterns is that Japanese has an accentual system different from the source languages. Japanese is classified as a pitch accent language, while source languages such as English are stress accent languages. Thus, phonologists have long considered it impossible to preserve or imitate[8] original prominence patterns from stress accent languages.[9]

Some studies, however, reveal that stress accent languages also have a pitch fall after stressed syllables. For example, Sugito (2012) examined pitch patterns in Japanese and English. She argues that there is a pitch fall between stressed syllables and the following syllables in English as well. She shows in her work that the dramatic pitch falls after syllables are the most important factor even when the accent of the stress accent language is perceived. It cannot be concluded that Japanese and English use different mechanisms to embody prominence patterns. Japanese speakers can, therefore, imitate original stress patterns from English.

In addition, Kang (2010) reports that accent is relatively freely distributed in tone and pitch accent languages while stress accent languages have stricter restrictions. According to her, many tone and pitch accent languages faithfully preserve original prominence patterns, though a number of tone and pitch accent languages ignore native rules partially or completely. Stress languages, on the other hand, usually ignore the original accent positions and employ strategies such as deletion or lengthening.

In Kang's (2010) article, she states that loanwords in tone languages such as Cantonese, Yoruba,[10]

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[8] Loanwords are different from their source words. Even if Japanese speakers try to imitate the source words, they are converted into Japanese, at least in terms of segmental adaption. For example, some sounds are substituted if they are not phonemes in Japanese. Japanese does not allow coda consonants other than the first part of geminates or syllabic nasals. Syllable structures are also changed by vowel epenthesis.

[9] In stress accent languages, almost all of the words have a stress. As English content words always have a stress, the reason why some loanwords are unaccented is not accountable when it is assumed that loanword prosody in Japanese comes from the original languages through the recipient-language-based analyses.

[10] Yoruba is the language spoken in southwest Nigeria (Matthews, 2014).

Hausa, [11] Shona, [12] Twi [13] and Kongo preserve original accent patterns. There are, however, some tone language such as Thai, Tibetan and Taiwanese that partially or completely ignore original prominence patterns in their source words. She says that some tone languages tend to assign the accent by the native mechanism even if the source words do not prevent the words from preserving their original accent. In stress languages, the accent is assigned based on the native rules as the languages have stricter restrictions. In some of the languages, the stress is shifted to meet requirements. In other languages, some segments are deleted or a vowel is lengthened to preserve the position of the prominence patterns in the source languages.

According to Kang (2010), some pitch accent languages preserve original accent patterns from both stress accent languages and pitch accent languages, while some languages do not. Based on her argument, it can be said that Japanese has some possibility to preserve original prominence patterns. [14] She also points out that original accent patterns are more likely to be preserved when language contact is more direct. For the reasons above, it is natural to assume that original accent patterns are preserved in Japanese to some extent.

2.4   *Comparison between the Recipient-Language-Based Analyses and the Source-Language-Based Analysis*   As Section 2.2 and 2.3 have taken a look at loanword accentuation by the recipient-language-based analyses and the source-language-based analysis, this section is going to compare their predictive capability. The discussion in this section is based on Tanaka's (2008) work and data. Although the majority of loanwords tend to preserve the accent of original words, Tanaka (2008) concludes that the prediction by LSR is the most powerful of the three. According to him, 1871 out of 2415 words [15] have a tendency to follow LSR, while 1659 out of 2415 words preserve original accent patterns. AAR is not as powerful as LSR. Although he did not count the number of words that were predicted by both the original accent and LSR, the predictability between them is much different. When the author conducted a chi square test, the difference between the original accent patterns and LSR was statistically significant ($\chi^2(1, N = 4448) = 61.69, p < .05$). The result showed that the number of words following LSR was significantly larger than the number preserving original accent patterns.

Figure 1
The number of words which preserve the original accent and follow AAR and LSR (adapted from Tanaka (2008))
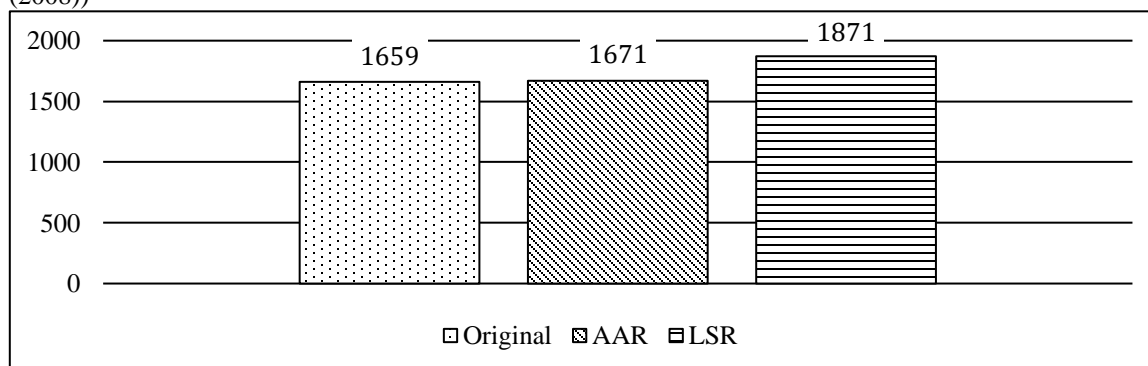
This section found that LSR had the greatest predictive capability in general. The following two chapters are going to take a closer look at loanword accentuation.

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[11] Hausa is native to northern Nigeria. The language is widespread as a lingua franca in West Africa (Matthews, 2014).
[12] Shona is spoken mainly in eastern Zimbabwe (Matthews, 2014).
[13] Twi is also called Akan, which is spoken mainly in Ghana (Matthews, 2014).
[14] Kang (2010) classifies Japanese as one of the languages that do not faithfully preserve the original prominence patterns because her description is based on Kubozono (2006).
[15] Unaccented loanwords are excluded from this examination since both the recipient-language-based analyses and the source-language-based analysis cannot predict unaccented words.

3   Relation between Newness and Original Accent Preservation

The analysis in the last chapter revealed that accent assignment based on LSR was more persuasive than the assumption that the loanwords preserve original prominence patterns. The number of loanwords that preserve original accent patterns, however, seems to be increasing. This chapter aims to show that newer loanwords are more likely to preserve their original accent patterns.

3.1   *Hypothesis*   This subsection examines whether there is any case in which loanwords are more likely to preserve the original accent patterns. As Kang (2010) points out that the original prominence patterns are faithfully preserved when language contact is more direct, it is natural to assume that the newer loanwords preserve the original accent because language contact in the modern world is more direct than it used to be. Given this, the hypothesis tested here is that the newer words tend to preserve the original accent pattern.

3.2   *Data*   In order to test the hypothesis, the author collected 818 loanwords (hereinafter referred to as "older") from *NHK Accent Dictionary* (1998) and 163 loanwords (hereinafter referred to as "newer") newly registered in *New NHK Accent Dictionary* (2016). Acronyms[16] were excluded from the examination because the words allow accent patterns which other types of words do not. None of the words had accentual variants and all had more than three moras. They were also morphologically simple words[17] borrowed from English.[18]

3.3   *Methodology*   This section reports what was done to analyze the data. Using the *Concise Katakana Dictionary* (2004), *Osaka and Tokyo Accent Dictionary* (1996) and *CELEX* (1995), loanwords which were from languages other than English were excluded, original spelling was given to each word, and the accent of original words was confirmed. After this process, the number of words preserving the original accent patterns and following AAR or LSR was counted.

3.4   *Results*   In terms of preserving original accent or not, words in the newer group were more likely to preserve original accent patterns. The difference between the two groups was statistically significant when a chi square test was conducted ($\chi^2(1, N =981) = 4.50$, $p < .05$). Based on Bonferroni's correction, the significant level was divided by four as the test would be applied three more times for the same data.

Figure 2
The percentage of words which preserve the original accent

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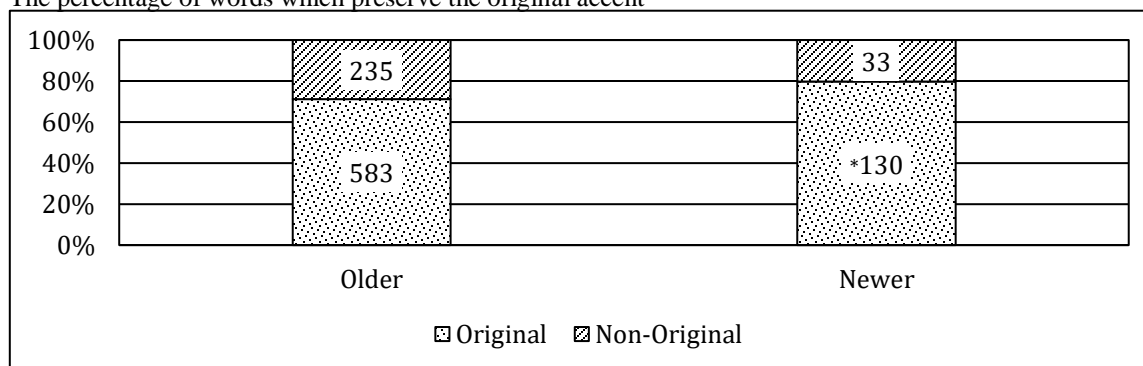
[16] Acronyms are words formed by the initial letters of each word.

[17] Morphologically complex nouns are known to follow the compound accent rule. The rule indicates that the accent of a compound noun is put on the last syllable of the former part if the latter part of the noun has one or two moras, while the accent is put on the initial part of the last syllable if the latter part has more than three moras. Otherwise, the compound noun preserves the accent of the latter part (Kawahara, 2015). Thus, compound nouns are excluded from this investigation. In this article, morphologically simple words are defined as ones written without any hyphen or space when they are written in English.

[18] According to Tanomura (1999), loanwords from languages other than English have their accent on the final syllable while loanwords from English do not.

Next, words in the older group were more likely to follow AAR. The difference between the two groups was statistically significant when a chi square test was conducted ($\chi^2(1, N =981) = 21.35, p < .05$). At the same time, words which were not predicted by AAR outnumbered those predicted by AAR in the newer group.
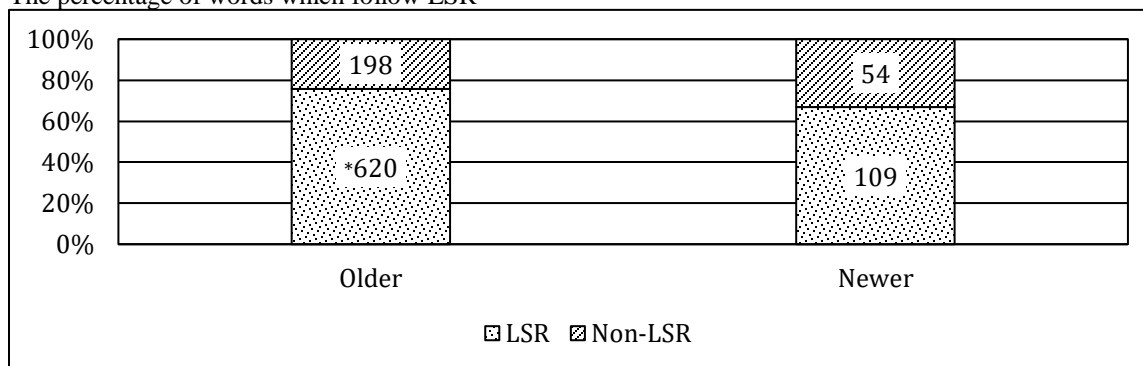
Figure 3
The percentage of words which follow AAR
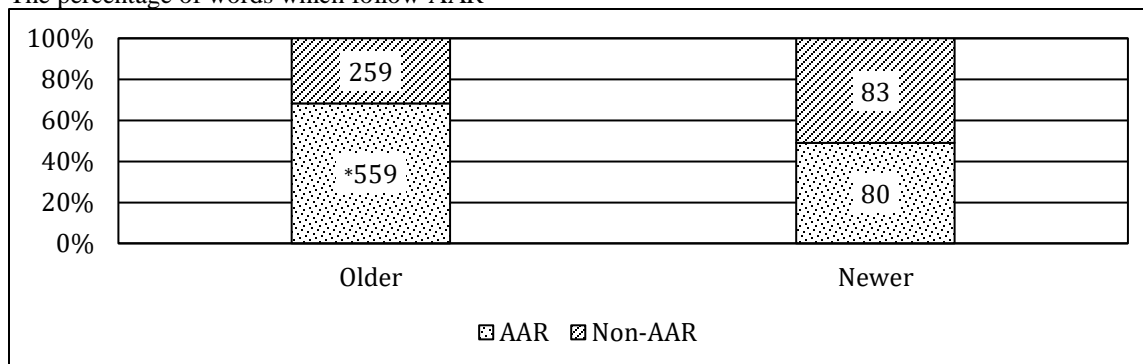
In terms of LSR, the difference between the two groups was significant ($\chi^2(1, N =981) = 5.21, p < .05$). Words in the older group were more likely to follow LSR.

Figure 4
The percentage of words which follow LSR

As for words not predicted by either AAR or LSR but predicted by their original accent, newer words were more likely to follow the original accent patterns. The difference between the two groups was statistically significant ($\chi^2(1, N =981) = 5.25, p < .05$). Some examples of the newer words predicted by only original accent are shown in (26).

Figure 5
The percentage of words which are predicted by only original accent (neither AAR nor LSR)
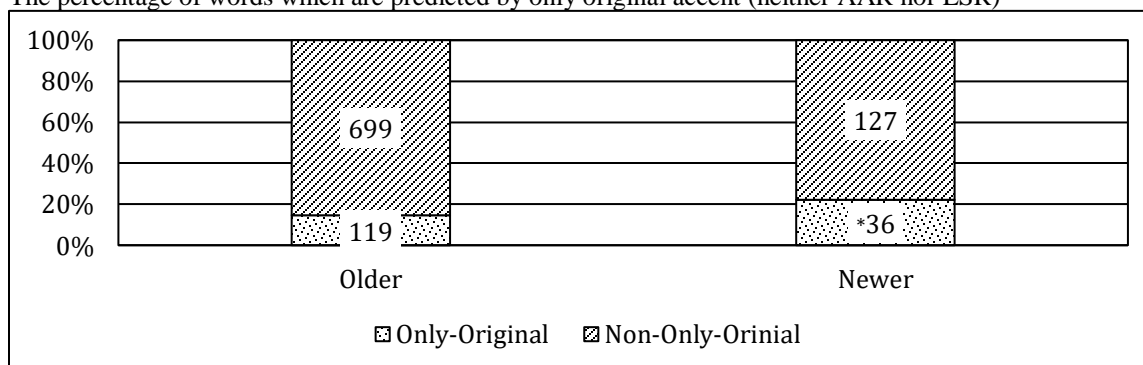
(26)
a. o'-o.di.e-n.su   'audience'   b. ko.mi'-t.to.me-n.to   'commitment'
c. ko-n.pu.ra'-i.a-n.su   'compliance'   d. ko'-n.te-n.tu   'content'

3.5 *Discussion*   The main result obtained in the analysis above is that newer words are more likely to preserve original accent patterns than older ones. Interestingly, this result is compatible with the difference between the segmental patterns of newer loanwords and those of older loanwords. Ito and Mester (1995) report that the segmental content of newer loanwords (alien loanwords) is more faithful to that of original words than that of older loanwords (foreign loanwords). According to them, geminate obstruents are voiced in alien words as in their original English counterparts, e.g., *mad.do* 'mad,' while the obstruents can be devoiced in foreign words, e.g., *bak.ku* 'bag.' They attributed this to different constraint rankings between the foreign and the alien cases. That is, a markedness constraint (NOVOIGEM) forbidding voiced obstruent geminates is ranked higher than a faithfulness constraint (FAITH) requiring that the original form should be preserved.

(27)

Foreign	Alien
NOVOIGEM	FAITH
FAITH	NOVOIGEM

(28) NOVOIGEM: Geminate obstruents must not be voiced.

(29) FAITH**:** Input form should be preserved.

Kubozono and Ota (1998) point out that when speakers are aware that words are from foreign languages, the words tend to faithfully preserve the information from the source languages. For example, when the speakers are conscious that 'handbag' comes from a foreign language, they will pronounce the word /handobaggu/ instead of pronouncing /handobakku/. This example shows that the newness of words can change the way speakers pronounce the words. Thus, it is not strange if the newness of the words affects some of the suprasegmental features, such as the accent.

Alien words do not have to follow the rules that foreign words follow, even in the suprasegmental adaption, because the constraint is ranked lower than the faithfulness constraint, as seen in (31). The main point in this section is that this analysis on suprasegmental adaption is compatible with Ito and Mester's (1995) analysis on segmental adaption. If there is a constraint making loanwords follow the rules (AARLSR), this article can rank the constraints as in (30).

(30)

Foreign (More familiar)	Alien (Less familiar)
AARLSR	FAITH
FAITH	AARLSR

(31) AARLSR: Accent must be assigned either AAR or LSR.

Newer loanwords are more likely to preserve information from source languages, not only at the level of segmental adaption, but also at the level of suprasegmental adaption. In other words, alien words can violate more markedness constraints than foreign words.

4   Relation between Familiarity and Original Accent Preservation

The last chapter confirmed that newer words were more likely to preserve original accent patterns. This chapter examines whether familiarity has something to do with original accent preservation. Newer words are usually less familiar, and the question raised in this chapter is whether unfamiliar words are more likely to preserve original accent patterns.

4.1 *Hypothesis*   The hypothesis tested in this section is whether or not speakers' familiarity has something to do with loanword accentuation. Unfamiliar loanwords seem to be used mainly by speakers who know their original accent. Given this, the hypothesis proposed here is that unfamiliar words are more likely to preserve the original accent patterns than familiar words.

4.2 *Methodology*   57 loanwords were extracted from the 981 words used in the last examination. The sample size was much smaller than that which the previous section used because the number of words assigned a familiarity rate was limited. Familiarity rate was defined by the percentage of people who understood each word. The rate was adapted from a database from NINJAL (2006). Then the words were divided into two groups. The "familiar" group had words understood by 50 or more than 50 percent of the test subjects, while the "unfamiliar" group had words understood by less than 50 percent of the subjects. Lastly, whether or not each word preserved original accent patterns was checked.

4.3 *Results*   Unfamiliar words were more likely to preserve the original accent patterns. The difference was, however, not statistically significant ($\chi^2(1, N =57) = 0.05$, $p > .05$). Given this result, no evidence was obtained for familiarity influencing loanword accentuation. It may be partly due to the size of the data used in this examination, which was much smaller than that of data used in the last chapter.

Figure 6
The percentage of words which are predicted by original accent
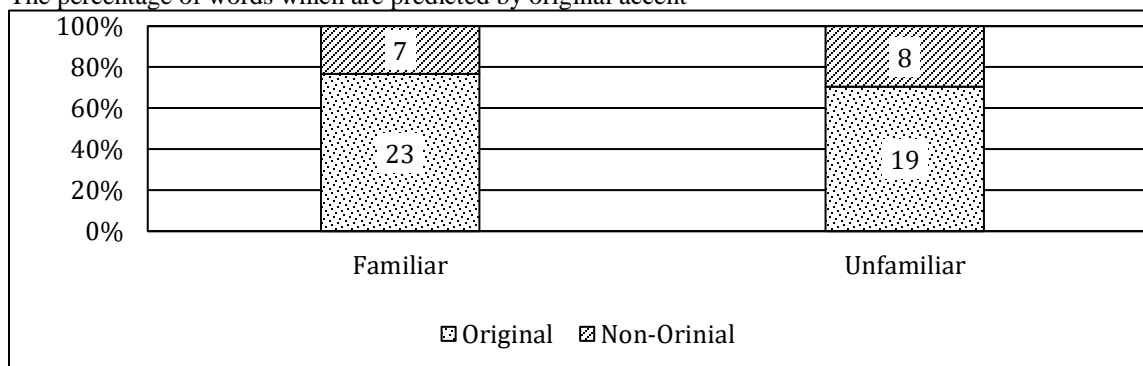
No evidence was obtained for loanword familiarity affecting the way speakers accentuate the words. It can be concluded that newness, rather than familiarity, has something to do with loanword accentuation, although further investigation is needed.

5   Conclusion

In conclusion, newly borrowed words have a tendency to preserve the accent of the original language rather than to follow rules such as AAR and LSR, while the accent patterns of older words tend to be predicted by the rules or constraints, as the third chapter has discussed. This fact suggests that newness affects suprasegmental features such as the accentuation. A similar effect of newness has been reported in Ito and Mester's (1995) study on the segmental behaviors of Japanese loanwords, and one of the major contributions of the current study is that it is not only segmental patterns but also suprasegmental patterns that are affected by the newness of loanwords. Another important contribution of this study is that speakers need to consult with both recipient-language rules and constraints and source-language prominence patterns, depending on what kind of words they pronounce. In other words, the loanword accent can partially come from its original prosody when loanwords are new.

The findings of this article might be able to connect newness with deaccentuation as accent patterns of older words are more similar to those of native words, most of which are unaccented. The relation between newness and deaccentuation is one of the remaining issues to be addressed in the future.

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