著者名 [英名]: Bruce Horton, Sayoko Minami

タイトル: Vowel Length and Rendaku

掲載誌: 神田外語大学紀要

巻: 23
号: 1

年: 2011-03

URL: http://id.nii.ac.jp/1092/00000587/
Vowel Length and *Rendaku*

Bruce Horton
Sayoko Minami

**Abstract**

Japanese inter-vocalic voicing (= *rendaku*) is a complicated problem with many exceptions, such as the one ordinarily called ‘Lyman’s Law’. This paper investigates the possibility that vowel length influences *rendaku*. We hypothesize that *rendaku* occurs after short vowels, as in the family name 小川 [ogawa], but not after long vowels, as in the name 大川 [okawa]. We also test the claim that *rendaku* occurs rarely in non-native Sino-Japanese names. We conclude that these factors are tendencies of greater or lesser strength.

**Keywords:** *rendaku* (= sequential voicing), vowel length, native names (= Yamato-kotoba), Sino-Japanese names

**1. Introduction**

This paper looks at a Japanese linguistic phenomenon which is usually called *rendaku* (= 連濁) in Japanese and in many English-language works (e.g., Vance 2007: 153, note 2; Ito & Mester 2003: 71ff; Takeuchi 1999: 48-50, and so on), although the term is sometimes translated as ‘sequential voicing’ following Martin (1952: 48), as in Yamaguchi (2007: 20-17), Iwasaki (2002: 22-24), and Shibatani (1990: 177ff). For the most part, *rendaku* is essentially intervocalic voicing assimilation, and it changes the voiceless initial consonant of a word into its corresponding voiced sound when it is preceded and followed by a voiced sound in a compound, as in *aburazemi* ‘a
large brown cicada’ in (1) (Shibatani 1990: 173; Tsujimura 1996: 54):

(1) \[[s] \rightarrow [z]\] \textit{abura} + \textit{semi} \Rightarrow \textit{aburazemi} \\
\quad \textit{oil} \quad \textit{cicada} \Rightarrow \textit{a large brown cicada’}

1.1. Factors blocking rendaku.

As Yamaguchi (2007: 21) has stated, \textit{rendaku} can’t be considered a regular phonological process since there are many exceptions, caused by a great variety of factors. Shibatani (1990: 174) has noted that the linguistic analysis of the exceptions to \textit{rendaku} is essentially negative, consisting of statements about when \textit{rendaku} does NOT apply. Perhaps the most important restricting factors are phonological, most notably what is commonly called Lyman’s Law\(^2\), which says that \textit{rendaku} does not apply if the second word in a compound already contains a voiced obstruent. In (2), the [s] of \textit{sabi ‘rust’} is not voiced because the word already has the voiced obstruent [b]. [The asterisk ‘*’ means a word form is unacceptable.]

(2) \[[s] \not\rightarrow [z]\] \textit{aka} + \textit{sabi} \Rightarrow \textit{akasabi} \not\Rightarrow \textit{akazabi} \\
\quad \textit{red} \quad \textit{rust} \Rightarrow \textit{‘red rust’}

Lyman’s law appears to apply almost without exception as Ito & Mester (2003: 89) claim (also Shibatani 1990: 174; Vance 1987: 136, and so on), though there is some question about this.\(^3\)

Another important phonological restriction on \textit{rendaku} was stated by McCawley (1968): if the final element of the first word in the compound is not a vowel, then \textit{rendaku} is blocked. This restriction appears to be invariably true for syllables ending with the mora obstruent, as in \textit{maQsaki ‘the very beginning’} – where ‘Q’ stands for a mora obstruent coda:

(3) \[[Q] \not\rightarrow [g]\] \textit{maQ} + \textit{saki} \Rightarrow \textit{maQsaki} \not\Rightarrow \textit{maQzaki} \\
\quad \textit{very} \quad \textit{first} \Rightarrow \textit{‘the very beginning’}

However, McCawley’s claim is only sometimes true for syllables ending with a mora
nasal. *Rendaku* may apply after the mora nasal, as in (4) *saNgai* ‘third floor’, or not, as in (5) *yoNkai* ‘fourth floor’—where ‘N’ stands for the mora nasal:

\[
(4) \ [k] \rightarrow [g] \quad \text{sa}\text{N} + \text{kai} \quad \text{saNgai} \\
\text{third floor} \quad \rightarrow \quad \text{‘third floor’}
\]

\[
(5) \ [k] \nrightarrow [g] \quad \text{yo}\text{n} + \text{kai} \quad \text{yoNkai} \\
\text{fourth floor} \quad \rightarrow \quad \text{‘fourth floor’}
\]

Some other restricting factors are lexical, relating to word etymology (Shibatani 1990: 174). It is said that, with rare exceptions\(^4\), *rendaku* applies only to native Japanese words (= *Yamato-kotoba*) and not to words borrowed from Chinese, as in (6) (*si* is the Chinese reading of ‘paper’), or from another foreign language (Yamaguchi 2007: 21-22; Shibatani 1990: 174-75; Otsu 1980: 208), as in (7) (*karenda* is from English *calendar*):

\[
(6) \ [s] \nrightarrow [j] \quad \text{haku} + \text{si} \quad \text{hakusi} \quad \text{*hakuji} \\
\text{white paper} \quad \rightarrow \quad \text{‘white paper’}
\]

\[
(7) \ [k] \nrightarrow [g] \quad \text{himekuri} + \text{karenda} \quad \text{himekuri-ka\text{rend\=a}} \quad \text{*himekuri-garenda} \\
\text{daily calendar} \quad \rightarrow \quad \text{‘a daily pad calendar’}
\]

Other factors which block *rendaku* are morphological, relating to word structure. For instance, Yamaguchi (2007: 23-24) argues that *rendaku* occurs only in compounds — which are made up of two-or-more independent words — but not in derived words made up of an affix attached to a stem. As an example of a compound, she gives 三日月, where the [t] in *tuki* ‘month’ is voiced by *rendaku* yielding [mikaduki]; in contrast, she argues *rendaku* is impossible in 毎月 *mai-tuki* ‘every month’ because *mai* is a prefix which can be attached to various stems, as in *mai-niti* ‘every day’, *mai-shū* ‘every week’, *mai-tosi* ‘every year’, and so on. Standard Japanese reference grammars such as Makino & Tsutsui (1986: 233-36) and standard Japanese-English dictionaries such as *Kodansha’s Furigana Japanese-
English Dictionary (1995: 450) also state that mai- functions as a prefix.\(^5\)

Another morphological factor which can block rendaku relates to word structure in compounds made up of more than two — almost always three — elements. Shibatani (1990: 175) writes that ‘the segment that is affected and becomes voiced must belong to the word that is the lexical head of the constituent functioning as the domain of voicing.’ Shibatani gives the example of \{
(nise zakura) mature\} ‘(fake cherry) festival’ versus \{nise (sakura mature)\} ‘fake (cherry festival)’. In structural terms, rendaku is normally permitted in a left-branching word like (8a) where nise and sakura fit together and together modify maturi, but not in a right-branching tree like (8b), where sakura and maturi fit together and are modified by nise:

(8) a.  
\[\text{nise} \rightarrow \text{zakura} \rightarrow \text{maturi}\]  
false cherry-blossum festival 

Rendaku is not permitted in (8b) because nise and sakura are not in the same constituent.

Finally, some blocking factors are the semantic and refer to the meaning relations of the words in a compound. One restricting semantic factor commonly noted (Shibatani 1990: 174-75; Vance 1987: 144) is the ‘equality’ of the elements in the compound. In most ordinary two-element compounds, one element, usually the first, is a modifier of the other (Vance 1987: 144). In such ordinary compounds, it generally seems to be the case that the second element, if a native word like kami ‘paper,’ DOES undergo rendaku, as in (9), if no other blocking factor (such as Lyman’s Law) interferes: shiro modifies kami, so rendaku is possible:
Vowel Length and Rendaku

(9) [k] → [g]  
  siro + kami → sirogami  
  white paper  ‘white paper’

On the other hand, compounds made up of non-modifying, coordinate elements (often called *dvandva* compounds from the Sanskrit term for this type of compound, (e.g., Bauer 2006: 723-24; Takeuchi 1999: 50; Shibatani 1990: 174-75; Otsu 1980: 213), such as sirokuro ‘white and black’, do not undergo rendaku because the two elements are coordinate and of equal status:6

(10) [k] → [g]  
  siro + kuro → siroguru  
  white black  ‘white and black’

Yet another semantic factor that can block rendaku is the semantic relationship holding between the modifier and the head of the compound Vance 1987: 145-46). If semantic role of the initial modifier is that of the Patient (= Theme), roughly meaning the nominal element that most directly receives the force of the verbal action depicted by the second element of the compound, then it seems that rendaku is ordinarily blocked. For instance, in (11) rendaku does not apply to the initial [t] of tataki ‘beat’ because the initial modifier kane ‘gong’ depicts the object (= the semantic Patient) that is being hit:

(11) [t] → [d]  
  kane + tataki → kanetataki  
  gong beat  ‘gong hitting’

In contrast, if the semantic role of the nominal modifier is that of Instrument, the tool or implement which is used to perform the verbal action, then rendaku is permitted. For example, kaki ‘writing’ is the head of the compound penkaki, and the initial modifier pen ‘pen’ is the semantic Instrument which is used to do the writing, and therefore rendaku is permitted:

(12) [k] → [g]  
  pen + kaki → pengaki  
  pen writing  ‘pen-writing’ [= writing with a pen]
To make matters even more complex, there may be yet other factors which serve to block the application of *rendaku*, a point we touch upon again in our conclusion.

1.2. Another phonological factor: hypothesis.

This paper investigates yet another phonological factor which may block *rendaku*. This factor is whether the vowel before the affected consonant is a short or a long vowel. A characteristic pair of examples would be the voicing of the [k] in *kawa* “river” in the family name 小川 [ogawa], where the preceding vowel is short (13a), versus the lack of voicing in 大川 [okawa], where the preceding vowel is long (13b):

(13)  a. 小川 o + kawa → [ogawa]  
       b. 大川 ō + kawa → [ōkawa]

This contrastive behavior is not limited to short [o] and long [ō], although examples with these two vowels seem to be far-and-away the most common. In (14a), the [t] of *to* “door” is voiced after a short [e] vowel, while in (14b) the [t] is left unvoiced after a long [ē] (O’Neil 1972: 201, 202):

(14)  a. 江戸 e + to → [edo]  
       b. 永戸 ē + to → [ēto]

Similarly in (15a), the [h] of *hara* “field” is voiced after a short [i] vowel but unchanged when following the long [ī] in (15b) (O’Neil 1972: 220, 222):

(15)  a. 井原 i + hara → [ibara]  
       b. 飯原 ī + hara → [īhara]

In this paper, our hypothesis is that *rendaku* is permitted when the preceding vowel is short but blocked when the preceding vowel is long.

(16) **Hypothesis:** *Rendaku* is required after a short vowel, but *rendaku* is blocked after a long vowel.

Out of analytical necessity, we also test the claim that *rendaku* is largely restricted to native Japanese words in compounds and does not normally occur in Sino-Japanese words.

Next in §2, we explain the methodology that we have employed to test this kind
of phonological patterning. Then, in §3, we analyze a corpus of Japanese names comprised of compounds in which *rendaku* is theoretically possible. Finally, in §4, we summarize our findings and propose suggestions for future research.

2. Methodology
2.1. Corpus.

To test the claim that *rendaku* will occur after a short vowel, as in the family name *Ogawa*, but will be blocked after a long vowel, as in the family name *Ōkawa*, we analyzed the Japanese examples given in O’Neil’s exhaustive list of Japanese names, *Japanese names* (1972). Since O’Neil’s work covers some 36,000 names (1972: vii), it was necessary to limit the database in some manner. For the sake of expediency, we decided to confine our corpus to the Japanese names which begin with short [o] or long [ō]. This seemed a reasonable choice since there are far, far more Japanese names beginning with short [o] or long [ō] than any other Japanese short-and-long vowel pair and since this choice guaranteed that we would have hundreds of (actually over a thousand) tokens to analyze, although it would be desirable if more tokens were considered, even if that is unrealistic in this exploratory paper.

**Corpus of Japanese names: Irrelevant tokens.** Let us turn to the corpus of Japanese names in O’Neil’s collection. All together, 1154 Japanese names are given in O’Neil’s section (1972: 281-87) of words beginning with an ‘o’ whether short [o] or long [ō].

Of this grand total, many names were irrelevant to our purposes and were omitted from consideration. Some tokens were cut because (a) they merely repeat a previous token. O’Neil frequently repeats names in two fashions. First, he sometimes repeats a family name if two or more famous people shared the same surname. Thus O’Neil’s entry for the family name *Oda* has entries both for *Oda Nobunaga*, the first Shogun
to unite Japan, and again for the writer Oda Hideo, as in (17a & b).

(17)  a.  Oda Nobunaga  
   b.  Oda Hideo

Secondly, O’Neil sometimes gives a family name as a general surname, as in Obase, and then immediately below gives a specific example or examples of this surname with the individual’s given name following the tilde mark (which abbreviates Obase Takužō), as in (18b):

(18)  a.  Obase  
   b.  ~ Takužō

In all such cases, only the first token listed was analyzed. All subsequent repetitions of the name were eliminated from consideration. Altogether, 196 names (17% of all ‘o’-section entries in O’Neil) were omitted from consideration since they merely repeated a name.

Also irrelevant to our study are compounds in which (b) the second element begins (in isolation) with anything other than a voiceless obstruent, for voiceless obstruents are the only sounds subject to rendaku. Accordingly, we do not consider names whose second element begins with a vowel, as in 小天 [ōama] (19a), or with a sonorant, as in 小野 [ono] (19b).

(19)  a.  小天 Ō-ama       b.  小野 Ō-no

We also included in this group names whose relevant element was invariably voiced and had no voiceless alternative. For instance, we excluded the name 大場 [ōba] since the second element is invariably [ba] and is therefore not subject to rendaku:

(20)  大 Ō ‘big’ + 場 ba ‘place’  ➔ Oba

For the same reason, we excluded from consideration all compounds in which the relevant element began with an obstruent which is invariably voiceless. For
example, the kanji 子 usually meaning ‘child’ can appear as a voiced sound in the common word 団子 dango ‘dumpling’ (probably as an ateji); however, it seems that in Japanese names, it always remains voiceless, as in the place-names 丘子 [okako] (21a) and 沖子 [okiko] (21b).

(21)  a. 丘子 Oka-ko  
       b. 沖子 Oki-ko

Similarly, we also eliminated from consideration any name whose relevant element already contained a voiced obstruent since it seems that in all such cases rendaku is blocked by Lyman’s Law. Thus names like 小芝 [oshiba] (20a) and 大芝 [ōshiba] (22b) were excluded from our study:

(22)  a. 小芝 O-shiba  
       b. 大芝 Ō-shiba

The last group of tokens omitted because rendaku was not possible include words like 御岳 [mi-take], in which the first element is an honorific which is most naturally treated as a prefix, a morphological category which does not normally, as we noted earlier, trigger rendaku. An example from our database would be Ōimikado in (23), where the honorific prefix 御 - [mi] does not cause voicing of the following “k” sound:

(23)  大炊御門 [ōimikado]

Altogether, the number of names which were excluded from study because the relevant element of the compound was not subject to rendaku for one reason or another was 344 tokens (30% of all ‘o’ entries in O’Neil’s work).

Thirdly, we excluded (c) one-kanji names such as 岡 [oka] (24) because they consist of a single kanji and, as such, could never be a site for rendaku.

(24)  岡 Oka ‘hill’

However, in a couple of cases we did make exceptions as a way to increase the total number of tokens. If O’Neil’s entry began with a single-kanji name, we skipped over it if it was followed by a commonly-used homonym made up of two-element compound of a sort relevant to our study. For example, we skipped over
the initial single-kanji reading of 大 as [osumi] (25a) and instead used the second homonymous two-kanji compound 大住 [osumi] (25b) since it is relevant to our study:

(25) a. 大 Osumi b. 大住 Osumi

In total, 25 names were cut out of our study because they consisted of a single word and, as such, were not a possible site for rendaku.

Finally, (d) we discarded a surprisingly-large number of tokens because here was no straight-forward way to determine their internal structure so as to decide whether rendaku could have applied or not. This is an extremely miscellaneous group that is not an easy to describe as a whole. One example would be the compound 行行林, for which O’Neil gives the two readings illustrated in (26a & b):

(26) a. 行行林 Odoro b. 行行林 Odorobayashi

These are perhaps ateji of some unusual sort, but our main point here is that there is no connection between any of the ordinary pronunciations of the repeated kanji 行行 and the actual phonetic realization [odoro]. This and similar tokens cannot be confidently analyzed as examples of rendaku by any simple or plausible means, and so a total of 128 tokens of this or another sort (= 11% of all “o” tokens in O’Neil) were excluded from consideration.

All together 693 tokens in O’Neil’s database were excluded from analysis because they were irrelevant for one of the four reasons we have just listed.

To switch a positive, inclusive perspective, we were able to somewhat increase the number of tokens in our database in two ways. Up until now we have only talked about names in which the first element is made up a single short [o] as in 小 ‘small’ or a single long [ō] as in 大 ‘big’. This is a large set of names, exactly 318 of total number of relevant tokens analyzed in this paper. However, many of the names in the ‘o’ section of O’Neil’s work are more complex but are still relevant to our research hypotheses. For example, names like 帯平 [obibira] in (27) begin with the
element 帯 obi. While the word-initial short [o] vowel cannot affect rendaku in the second element of the compound, the short [i] vowel at the end of the word certainly can:

(27) 帯 obi + 平 hira  \rightarrow Obibira

kimono sash flat

This procedure also had the beneficial result of including tokens for which the triggering vowel was not either short [o] or long [ō]. For instance, in (27) above, the triggering vowel is short [i] of obi. The other three Japanese vowels also appeared as triggers (or not, as the case may be), as exemplified in (28):

(28) a. [a] 小佐 asa + 手 te  \rightarrow Osade
    b. [u] 奥 oku + 原 hara  \rightarrow Okuhara
    c. [e] 桶 oke + 川 kawa  \rightarrow Okekawa

Secondly, it was possible to increase the total number of tokens to analyze by adding names like 小花沢 [obanazawa] which are made up of more than two kanji. Rendaku can apply twice: the initial element 小 [o] triggers rendaku in 花 [hana], yielding [obana], and the [a] at the end of 小花 [obana] triggers rendaku in 沢 [sawa], yielding [obanazawa], as illustrated in (29):

(29) a. 小 o + 花 hana + 沢 sawa  \rightarrow Obanazawa

small flower creek

Altogether 90 more tokens, most of which had a trigger other than long [ō] or short [o], could be added to our database by considering a second or even a third possible rendaku site in a complex 3-or-more-element compound.

This left a total of 477 Japanese names for analysis. We describe the results of our analysis in the following section.
3. Analysis

When we first surveyed our database carefully, we were reminded of McCawley’s despairing words concerning the analysis of rendaku in Japanese. McCawley’s wrote (1968: 87, note 18)

(30) I am unable to state the environment in which the ‘voicing rule’ applies. The relevant data are completely bewildering.

And certainly, there does seem to be a considerable amount of chaos in the application or non-application on rendaku in Japanese family names. A name like 小浜 is a good example of a name that may be pronounced either [obama] or [ohama], seemingly at random.

Nevertheless, with this much said, our study suggests that there are at least some strong tendencies. Our hypotheses were (1) that rendaku would apply after short vowels, as in the pronunciation of the family name 小川 [ogawa] but (2) would not apply after long vowels, as in the pronunciation of the family name 大川 [okawa]. It was necessary to also examine a third hypothesis in order to conduct our study, namely (3) that rendaku does not apply to Sino-Japanese words regardless of vowel length.

In our analysis of 1171 family names, 477 tokens were deemed relevant for study. Of this sub-total, 307 tokens (= 64%) were in line with our three hypotheses, while 170 (= 36%) contradicted them.

(31) Hypotheses supported by 307 tokens = 64%
Hypotheses contradicted by 170 tokens = 36%

In brief, speaking roughly, our hypotheses held true two-thirds of the time but failed one-third of the time. These kinds of percentages are not good enough for rocket science, but they are good enough to tell us vowel length and whether the name is of native Japanese or Sino-Japanese origin seem to be important factors in determining
their pronunciation.

Let us look at our three hypotheses one by one, beginning with hypothesis three which claims that \textit{rendaku} applies to native Japanese words but not to borrowings such as those from the Sino-Japanese lexical stratum. In the database of relevant examples, there were a total of 74 relevant tokens in an environment in which \textit{rendaku} could possibly apply to a word of Sino-Japanese origin. Of these 74, for 56 tokens (= 76\%) \textit{rendaku} did NOT occur, as predicted, while for 18 tokens (= 24\%), \textit{rendaku} occurred counter to prediction.

(32) Hypothesis 3: \textit{Rendaku} does NOT occur in words in the Sino-Japanese Lexical Stratum

\begin{itemize}
\item Hypothesis supported by 56 tokens $= 76\%$
\item Hypothesis contradicted by 18 tokens $= 24\%$
\end{itemize}

We were somewhat shocked by these percentages because, like most others studying this matter, we were under the impression that \textit{rendaku} was rather rare with words in the Sino-Japanese lexical stratum, but we feel that 24\% is anything but rare. The exact breakdown is that, for the 22 tokens of words following long vowels, \textit{rendaku} did not occur, as predicted, in 17 cases (= 77\%) but did occur in 5 cases (= 23\%). For the 52 tokens of words following short vowels, \textit{rendaku} did not occur, again as predicted, in 39 cases (= 75\%) but did occur in 13 cases (= 25\%).

We believe that, although the number of tokens is distressingly small, the frequency of consonant voicing after either short or long vowels in the Sino-Japanese lexical stratum is far higher than expected and is perhaps the single most important area for further research on this topic.

The next hypothesis was that, for native Japanese words, consonants following a short vowel would voice. Perhaps because Japanese was originally a strongly CV language and because CVV syllables are largely invasive, it may not be surprising
that, of the 477 relevant tokens, this was the largest sub-group with 294 tokens. However, this subgroup is the most chaotic in the sense that the percentages of tokens in line with our hypothesis and those in conflict were the most closely balanced. Of the total of 294 relevant tokens in which the consonant followed a short vowel, 170 (= 58%) were voiced, as predicted, whereas 124 (= 42%) were not voiced.

(33) Hypothesis #1: *Rendaku* occurs after short vowels in the native Japanese names

<table>
<thead>
<tr>
<th>Hypothesis supported by 170 tokens</th>
<th>58%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis contradicted by 124 tokens</td>
<td>42%</td>
</tr>
</tbody>
</table>

These percentages seem to be saying that voicing after a short vowel is pretty much a throw of the dice: half the time you’ll get voicing, and half the time you won’t. Our hypothesis that *rendaku* occurs after short vowels was only very weakly supported.

The last hypothesis was that *rendaku* would not occur after long vowels. The total number of native-Japanese words following a long vowel was 109 tokens. Of these, there was no voicing, as predicted, in 81 cases (= 74%), but there was voicing, against our predictions, in 28 cases (= 26%).

(33) Hypothesis #2: *Rendaku* does not occur after long vowels in the native Japanese names

<table>
<thead>
<tr>
<th>Hypothesis supported by 81 tokens</th>
<th>74%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis contradicted by 28 tokens</td>
<td>26%</td>
</tr>
</tbody>
</table>

These percentages would appear to indicate that there is a clear tendency for consonants not to voice after long vowels, but this is true only three-quarters of the time. In the other one-quarter, we get voicing. So long vowels blocking *rendaku* is only a tendency.
4. Conclusion

In sum, there is only a slight tendency (= 58%) for *rendaku* to occur after a short vowel in Japanese names, as in the family name 小川 [ogawa]. In contrast, there is a much stronger tendency (= 74%) for *rendaku* NOT to apply after long vowels, as in the name 大川 [ogawa]. Contrary to expectations, there was a surprisingly large number of Sino-Japanese names (= 24%) in which voicing occurred, as in the final element of the common family name 大久保 [ōkubo].

As for future studies, there are any number of possibilities. For one thing, while a corpus of 1171 tokens of Japanese family names is not insubstantial, it is clearly the case that our corpus is severely restricted, made up entirely of names beginning with a short or long “o”, and so it is not clear how much one can generalize on the analysis made here. On the other hand, it is fortunate that O’Neil’s work turns out to contain an abundance of tokens of Japanese names which have an initial element that is either short [o] or long [ō] – a total of 318 to be exact. As a result, we feel fairly confident that our data are most likely representative, especially because we have been able to add tokens with all five of the Japanese vowels.

Nevertheless, one obvious improvement would be to analyze more family names. O’Neil’s work includes some 36,000 family names, so it would be good to analyze a larger corpus of Japanese names. Similarly, our study focused on the names of Japanese people and places. While there is no reason to doubt that personal and place names are NOT representative of the phonological patterns in Japanese words in general, there is equally no reason to believe that personal and place names are characteristic of all Japanese words. So future studies might include common nouns, such as 小琴 [ogoto] “small koto” and 大手 [ōte] “major companies”, as well. In addition, it might be interesting to look at the voicing patterns in non-nominal constructions, such as verbal compounds like 差し込み [sašikomi] “insertion” versus
In another direction, we were often struck by questions of whether there were – or were not – micro-patterns in our corpus. We have not addressed these questions directly, but it may be the case that certain word-forms favor *rendaku*, while certain other word-forms resist voicing. We have also occasionally speculated that the seeming chaotic tendencies we see in our corpus may be part of a much larger linguistic pattern. In particular, we wonder if there may not be something like a “linguistic conspiracy”, a term Kisseberth’ coined in 1970, of a sort that favors voiceless consonants over voiced consonants. Of course, any such statement must be strongly qualified since it has been the case that Old Japanese did not contain word-initial voiced consonants but now does, in contradiction to the tendency we have just suggested.

**Endnotes**

1 *Rendaku* is a controversial topic in Japanese linguistics. What we may call ‘regular *rendaku*’ is most often common-place intervocalic voicing. In cases like *abura + semi* becoming *aburazemi* “a large brown cicada” given in the body of this paper, *rendaku* is simple intervocalic consonant voicing where voiceless [s] becomes voiced [z] between voiced vowels. What we may call ‘irregular *rendaku*’ refers to cases in which it *appears* that [h] alternates with [b] or with [p] as in (i) and (ii):

(i) \([h] \rightarrow [b]\)  
\[\text{yae} + \text{ha} \rightarrow \text{yaeba}\]

oblique tooth “oblique tooth”

(ii) \([h] \rightarrow [p]\)  
\[\text{san} + \text{hai} \rightarrow \text{sanpai}\]

sprinkle ash “sow”

The problem of irregular *rendaku* was ‘solved’ by James McCawley (1968) in the classical Generative Phonology model by including historical sound changes — in
Vowel Length and \textit{Rendaku}

this case the historical sound changes commonly referred to as Labial Weakening or words to this effect (Shibatani 1990: 166-67) — into the derivation. For present purposes, we adopt McCawley’s analysis. McCawley’s inclusion of ancient phonological sound changes into derivations has proved unattractive to some Japanese linguists, despite their agreement that the historical sound changes actually took place since there is nothing (except the facts of irregular \textit{rendaku}) to suggest sound alternations like [p] \textrightarrow [b] or [p] \textrightarrow [h] are more than mere ‘historical relics having no synchronic phonetic motivation’ (Shibatani 1990: 167) in the modern Japanese language.

\footnote{Lyman was, in 1894, the first Westerner to discuss exceptions to \textit{rendaku} (Shibatani 1990: 174; Vance 1987: 136-139; Otsu 1980: 210). Lyman pointed out three broad cases in which \textit{rendaku} does not apply. One notable set of exceptions is usually called Lyman’s Law in papers written in English (e.g., Vance 1987, Shibatani 1990, Ito and Mester 2003; Yamaguchi 2007: 21). In general, we expect that \textit{rendaku} will voice the initial voiceless consonant of the second word in a compound, as \textit{en} + \textit{taku} changes to \textit{endaku} “highrate”. However, Lyman’s Law states that, when the final element of a compound includes a voiced obstruent – the group of sounds including voiced stops, fricatives, and affricatives (namely Japanese \{b d g z j\}) – \textit{rendaku} does \textbf{not} occur, with very few or perhaps no exceptions, as Ito and Mester (2003: 89) claim, which is a point we return to in the following endnote. Some writers, such as Yamaguchi (2007: 21) give Lyman credit for being “the scholar who first recognized [Lyman’s Law] in the nineteenth century.” Others, however, are more skeptical. Vance (2007: 169-170) notes that the Japanese scholar Motoori Norinaga (1730-1801) stated something close to Lyman’s Law in his writing; also Vance says “there is a strong suspicion among experts on Japanese
linguistics that Lyman did not discover the ‘law’ that bears his name but rather
learned about it from someone else that he did not acknowledge.” Nevertheless, it
has become commonplace to call this exception to *rendaku* ‘Lyman’s Law’, and we
will continue that practice here.

3 It is common to claim that Lyman’s Law blocks *rendaku* apparently without
exception (Ito & Mester 2003: 89). However, Kindaichi (2005: 590) cites a Japanese
linguist named Seichu Ooiwa who claimed to have found two counter-examples:
says these examples are ‘rather peripheral’, and we feel that Vance (1987: 137) gives
a much more convincing example of a counter-example to Lyman’s Law, namely
nawa ‘rope + hasigo “ladder, where the underlying [h] becomes voiced [b] despite
the presence of a voiced obstruent later in the “same word,” becoming *nawabashigo*
‘rope ladder’ We are also inclined to agree with Otsu’s that, whatever is the status
of these putative counter-examples, there is no doubt that Lyman’s Law is of ‘great
generality’. Lyman’s Law is perhaps the only aspect of *rendaku* that applies with
near-perfect regularity. In this paper, we conclude that everything else is merely a
‘tendency’.

4 It is often noted that, in rare cases, a non-native word may undergo *rendaku.*
Yamaguchi (2007: 22) gives *ki + sōyu* becoming *kijōyu* ‘pure soy sauce’, which
would be an example of *rendaku* applying to a Sino-Japanese word. However, we
feel this is an uncommon, seldom-used word. A better example of voicing of a Sino-
Japanese element might be the voicing to “b” in the family name 久保 [*kubo*].

In addition, although loanwords usually do not undergo *rendaku*, there are
some interesting exceptions, namely early Portuguese loans (Loveday 1996: 50-
52; Shibatani 1990: 171-75; Vance 1987: 140-41). In Japanese history, Portuguese traders set foot on an island called Tanegashima in the south of Kyushu in 1542, and Portuguese contact lasted for almost a century, from 1542 to 1639 (Loveday 1996: 50). It seems that because of their early adoption, some early Portuguese loan-words have been completely assimilated into Japanese and are treated just like native Japanese words. In (i), the word-initial voiceless [k] in the second element changes into voiced [g]; although kappa “coat” is an early loan-word from Portuguese, it behaves exactly like a native Japanese word.

\[(i) \quad [k] \rightarrow [g] \quad \text{ama} + \text{kappa} \rightarrow \text{amagappa} \quad *\text{amakappa} \]

rain coat ‘rain coat’

While this is clearly a case in which an early loanword from Portuguese behaves like a native Japanese word, it is also the case that such examples are severely restricted. For one thing, all examples that we have come across in the literature and in our research involve the voicing of velar [k]. No other consonant is subject to *rendaku*. For instance, other Portuguese borrowings which are treated like native Japanese words include *tenpura* “butter fries”, *tabako* “tobacco”, *shabon* “soap”, and so on. *Tempura*, for example, is written as 天ぷら or 天婦羅, and many Japanese believe that tempura is a native word for one of the most famous Japanese foods. However, even though *tempura* is commonly regarded as a native Japanese word, it can not undergo *rendaku*. In the following example, the voiceless [t] does not change into a voiced [d] in a compound:

\[(ii) \quad [t] \rightarrow [d] \quad \text{kinoko} + \text{tempura} \rightarrow \text{kinokotempra} *\text{kinokodenpura} \]

mushroom butter fried ‘mushroom butter fries’

Another restriction is that only some of the early Portuguese loans which begin with [k] are subject to *rendaku*. For example, the [k] in the loanword *kurisuto* ‘Christ’ can not be voiced in a compound:
(iii) \[k \rightarrow [g]\] kakure + kurisuto \[\rightarrow\] kakurekurusuto *kakuregurusuto

hide Christ ‘hidden Christian’

In sum, while it is the case that some early Portuguese borrowings are subject to rendaku just like native Japanese words, these cases are limited to loans beginning with \[k\] and only some of the loans beginning with \[k\] can be voiced.

This much said, we should add that our study contradicts the general consensus that rendaku is unusual among Sino-Japanese words. Quite the contrary, in our analysis we find that nearly one-quarter of relevant Sino-Japanese names are voiced.

Yamaguchi (2007: 23-24) makes an interesting contrast of rendaku-permitting compounds (e.g., 三日月) [mikaduki] versus rendaku-blocking derivationally-derived words (e.g., 毎月 [maituki]. Yamaguchi calls the latter sandhi. However, as Otsu (1980: 216) pointed out decades ago, such a contrast is more than a little messy because ‘it is difficult to sort out derivatives with an affix from compounds’. Still as Otsu notes (1980: 216) it does seem to be the case that uncontroversial suffixes are unaffected by rendaku. It is also not completely clear what Yamanguchi means by the term sandhi. She seems to be using the term to describe morphophonemic changes which occur at the place an affix and a stem (or root) come together. However, sandhi is traditionally used in a much broader sense to include sound changes at the edges of word-pieces of most any sort (Kaisse 2006: 740-41).

Coordinate serial verbs usually do not undergo rendaku either. For instance, in the verbal compound 差し込み [sašikomi] “insertion”, the “k” is not voiced.

We are grateful to our friend and colleague, William Fisher of Chiba Kōgyō Daigaku, for the observation that a long vowel in a family name seems to block
rendaku. We are also grateful to him for recommending O’Neil’s book Japanese names (1972) as a convenient way to test this hypothesis. While we will see that long vowel length often blocks voicing, we should acknowledge in advance any influence of vowel length on rendaku is just a tendency and that there are exceptions. On the one hand, although the family name 大林 [ōbayasi] contains a long vowel, rendaku occurs. Conversely, although the family name 小谷 [otani] contains a short vowel, rendaku does not apply. Finally, family names like 大島 can be pronounced as either [ošima] or [ōjima].

8 O’Neil lists an amazing number of kanji which can realized as short or long ‘o’. Altogether O’Neil (1972: 281) lists 49 kanji which can be pronounced as short [o], including 小, 尾, 緒, 御, 於, 乎, and many others. O’Neil (1972: 281) gives 54 kanji which can be realized as long [ō], including 大, 王, 応, 押, 往, 横, and on and on.

References
Cambridge: The MIT Press.
Rendaku-no Kai [Solutions to rendaku]. Tokyo: Tamagawa University.


