

Lyman's Law, the OCP, and Prenasalization in Northern Tōhoku Japanese

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Introduction

This presentation will look at three kinds of interlocking evidence to argue that Lyman's Law originated as an OCP-like constraint prohibiting prenasalization in adjacent syllables.

The evidence is (1) typological, (2) dialectological, and (3) philological.

Rendaku and Lyman's Law

Modern Tokyo (“standard”) Japanese has a morphophonemic phenomenon called *rendaku* 連濁 ‘sequential voicing’.

Many morphemes have one allomorph that begins with a voiceless obstruent and another allomorph that begins with a voiced obstruent.

For example:

寺 /tera/ ‘(Buddhist) temple’

寺男 /tera+otoko/ ‘temple assistant’

山寺 /yama+dera/ ‘mountain temple’

The initial voiced obstruent in the
/dera/ allomorph is an instance of
rendaku.

A constraint on *rendaku* known as Lyman's Law says that *rendaku* does not occur in a 2-element compound if the second element (E2) contains a medial voiced obstruent.

For example:

玉 /tama/ ‘ball’

目玉 /me+dama/ ‘eyeball’



束 /taba/ ‘wind’

花束 /hana+taba/ ‘bouquet’

It does not seem to matter whether the inhibiting voiced obstruent is in the syllable immediately following the potential rendaku site or later in the second element.

For example:

雀  /suzume/ 'sparrow'

海雀 /umi+suzume/ 'murrelet'

羊  /hicuĵi/ 'sheep'

子羊 /ko+hicuĵi/ 'lamb'

Old Japanese and the Strong Version of Lyman's Law

Rendaku was already well established in 8th-century Old Japanese (OJ), the earliest period for which we have substantial written records.

At that time, however, voiced obstruents were prenasalized and did not occur word-initially in the non-mimetic native vocabulary.

In addition, the precursor of Lyman's Law in OJ was markedly different.

It appears that rendaku was blocked if there was a (prenasalized) voiced obstruent in an adjacent syllable on either side of the target segment.

This stricter constraint is known as
the strong version of Lyman's Law.

For example:

${}^0\text{J}/\text{midu}/$ 'water' + ${}^0\text{J}/\text{tori}/$ 'bird'

${}^0\text{J}/\text{midu}+\text{tori}/$ 'water bird'



$[\text{m}\tilde{\text{i}}^n\text{du}+\text{tori}]$

The strong version of Lyman's Law clearly does not hold in modern Tokyo Japanese.

For example:



/sode/ 'sleeve' + /kuči/ 'mouth'

袖口 /sode+guči/ 'cuff'

Lyman's Law and the OCP

Ever since an influential article by Ito and Mester appeared in 1986, it has been popular to interpret Lyman's Law as a manifestation of the OCP (Obligatory Countour Principle), specifically OCP-[voice].

The OCP rules out identical elements that are adjacent on some tier.

This can be made to work if only distinctive voicing (obstruent voicing in Japanese) is specified, but adjacency across a morpheme boundary does not count.

Also, in conservative varieties of modern Tokyo Japanese that have word-medial [ŋ] (< ⁰J[ⁿg]) instead of [g], [ŋ] blocks rendaku just as a voiced obstruent does:

鷺

 /sa[ŋ]i/ ‘heron’

青鷺

/ao+sa[ŋ]i/ ‘blue heron’

Thus, Lyman's Law in modern Tokyo Japanese is not (at least not surface-apparently) a phonetically-grounded constraint that prohibits voiced obstruents in adjacent syllables.

It presumably has to be learned as a language-specific constraint.

Furthermore, Kawahara (inspired by John Ohala's work) has argued that OCP-[voice] does not seem like a plausible universal constraint in the first place.

Cross-linguistically, OCP constraints on consonants seem to target adjacent syllables and features with “spread out” acoustic cues, such as aspiration (e.g., Grassman’s Law) and prenasalization.

Northern Tōhoku Dialects

Japanese dialects spoken in the northern part of the Tōhoku region (東北地方) preserve prenasalization of voiced obstruents.

In 2012, a survey was carried out in Kahoku-chō (河北町), a town in northern Yamagata Prefecture.



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The survey was led by Miyashita, who is a Kahoku-chō native, and the participants were 24 locally born and raised native speakers (13 male, 11 female) who ranged in age from 63 to 94 at the time of recording.



The outcome of rendaku in a conservative northern Tōhoku dialect is typically a prenasalized voiced obstruent.

The Kahoku-chō survey participants produced many such forms.

For example:

$^k[t_e]$ ‘hand’ + $^k[\phi\text{ɸ}g\text{ɸ}r\text{o}]$ ‘bag’

$^k[t\tilde{e}^m b\text{ɸ}g\text{ɸ}r\text{o}]$ ‘glove’

$^k[hama]$ ‘beach’ + $^k[k\text{ɸ}r\text{i}]$ ‘chestnut’

$^k[hama\tilde{a}^n g\text{ɸ}r\text{i}]$ ‘clam’

In most northern Tōhoku dialects, OJ
[^ŋg] has shifted to [ŋ], but many older
Kahoku speakers retain [^ŋg], as in
^k[hamã^ŋgɯri].

The expectation is that a counterpart to Lyman's Law in the Kahoku dialect would involve prenasalized voiced obstruents, and as ^k[t̥_ɪ^mbɯgɯro] shows, a simple voiced obstruent does not block rendaku.

Lyman's Law in the Kahoku dialect is the next topic.

Prenasalization in Adjacent Syllables

Modern Tokyo “standard” Japanese has the compound /nabe+buta/ 鍋蓋 ‘pot lid’, which exhibits rendaku (cf. /nabe/ ‘pot’, /futa/ ‘lid’).

The corresponding compound is not ordinarily used in the Kahoku dialect.

As a result, only 20 of the 24 Kahoku-chō survey participants were able to come up with something like the expected form in response to a picture prompt.

E1: $^k[nã^m b_e]$ ‘pot’

E2: $^k[\phi_{\circ} \psi ta]$ ‘lid’

Of these 20 productions, 14 displayed a lack of full integration into the traditional Kahoku dialect's phonological system, which is not surprising given the fact that the compound is not a native lexical item.

The remaining six productions all had prenasalized [^mb] for the medial consonant in E1 and voiced [d] for the medial consonant in E2, but only one had prenasalization on the initial consonant of E2.

Furthermore, this sole instance of E2-initial prenasalization is not entirely unambiguous:

$^k[nã^m b_{\perp} b\text{ɥ}da]$ $^k[nã^m b_{\perp} \check{e} b\text{ɥ}da]$

5 speakers

1 speaker (?)

These last six productions were especially puzzling.

Even the oldest of the Kahoku-chō participants was born too late not to be impacted by the relentless standardization policy of the Japanese national government, which began in the Meiji period (1868-1912).

Like most northern Tōhoku speakers, Kahoku-chō speakers are acutely aware that voiced obstruents corresponding to Tokyo voiceless obstruents and prenasalized obstruents corresponding to Tokyo voiced obstruents are salient and highly stigmatized.

Most Kahoku-chō speakers, especially those who are educated, have a tacit understanding of the correspondences between the local dialect and the Tokyo standard.

Consequently, they are capable to some degree of converting local forms to standard forms and vice versa.

What is hard to understand about the form $^k[nã^m b_e b_ɥda]$ is that it unabashedly contains both stigmatized features but deviates from the correspondence pattern at the rendaku site.

The key to unlocking this mystery was provided by Prof. Zendō Uwano, a member of the NINJAL Rendaku Project headed by Vance, which ran from late 2010 until early 2016.

Both Kawahara and Miyashita were also members of the project.



Prof. Uwano grew up in Shizukuishi-chō in Iwate Prefecture and is thus a native speaker of another northern Tōhoku dialect.



In the Shizukuishi dialect, pre-nasalized obstruents in consecutive syllables are phonotactically prohibited.

For example, consider the Shizukuishi compound corresponding to Tokyo /hana+bi/ 花火 ‘fireworks’ (cf. /hana/ ‘flower’, /hi/ ‘fire’):

$Sh[hanã^m bɨ]$

Note the expected prenasalization at the rendaku site.

Now consider the Shizukuishi
compound corresponding to Tokyo
/kaba+bi/ 樺火 ‘ceremonial fire’ (cf.
/kaba/ ‘birch’, /hi/ ‘fire’):

Sh[kã^mbabi]

The prenasalization in the preceding
syllable blocks it at the rendaku site.

Although the Shizukuishi dialect preserves prenasalized [^mb ⁿd ⁿdz], ^oJ/g/ [ⁿg] has become [ŋ], just as in (conservative) Tokyo pronunciation.

This [ŋ] does not block prenasalization in an adjacent syllable.

For example, compare two compound verbs corresponding to Tokyo
/nige+das-u/ 逃げ出す ‘run away’
and /tobi+das-u/ 飛び出す ‘fly
away’:

Sh[n+ŋẽⁿdasw]

Sh[tõ^mbidasw]

Thus, the Shizukuishi constraint applies only to prenasalized voiced obstruents.

That is, the Shizukuishi constraint has maintained its phonetic grounding.

If the same constraint holds in the closely related Kahoku dialect, then $^K[nã^m b_e b_{\text{æ}} d_a]$ is actually the fully nativized form corresponding to Tokyo /nabe+buta/ ‘pot lid’.

As noted earlier, many older Kahoku speakers retain prenasalized [ʲg].

Does the Kahoku dialect in fact have a phonotactic constraint prohibiting prenasalization in consecutive syllables? And if so, does [ʲg] block prenasalization just like other prenasalized voiced obstruents?

These are questions that the 2012 Kahoku-chō survey did not address.

The youngest participants were Prof. Uwano's contemporaries, but our fragmentary knowledge at the time did not give us any reason to probe in this direction.

Since all northern Tōhoku dialects are endangered, we feel extremely fortunate to have stumbled across this phonotactic restriction in time.

Better late than never.

The Domain of OJ Lyman's Law

As we saw earlier, Lyman's Law in modern Tokyo Japanese blocks rendaku when there is a voiced obstruent anywhere in E2.

Adjacency is not relevant.

A voiced obstruent in E2 blocks rendaku even if it is not in the immediately following syllable.

And a voiced obstruent in the last syllable of E1 does not block rendaku, even though it is adjacent to the syllable containing the rendaku site.

In northern Tōhoku dialects, on the other hand, it is prenasalized voiced obstruents in adjacent syllables that are prohibited.

Since the so-called strong version of Lyman's Law in OJ was a constraint involving prenasalized voiced obstruents, was adjacency relevant?

The situation in OJ is hard to assess for two reasons:

(1) The number of phonographically attested compounds is limited.

(2) Very few OJ morphemes were longer than two syllables.

One important example is:

⁰J/sode/ ‘sleeve’

⁰J/tuke/ ‘attaching’

⁰J/koromo/ ‘garment’

⁰J/sode+tuke/ ‘sleeved’

⁰J/sode+tuke+goromo/
‘sleeved garment’

What this example shows is that a prenasalized voiced obstruent not in the morph immediately preceding the rendaku site did not block rendaku.

⁰J/sode+tuke+goromo/



[sõⁿdetukĩ^ŋgoromo]

But was the domain of the inhibiting effect the entire preceding morph or just the preceding syllable?

There is only one relevant example:

⁰J/madara/ ‘multicolor’

⁰J/pusuma/ ‘bedding’

⁰J/madara+busuma/

The rendaku in this example indicates that a prenasalized voiced obstruent preceding the rendaku site had to be in the immediately preceding syllable to block rendaku.

^{0J}/madara+busuma/



[mãⁿdarã^mbusuma]

As for E2, unfortunately there are no convincing diagnostic examples involving a prenasalized voiced obstruent that is not in the syllable immediately following the rendaku site.

The absence of rendaku in some examples is suggestive:

⁰J/moto/ 'origin'

⁰J/pototogisu/ 'cuckoo'



⁰J/moto+pototogisu/
'returned cuckoo'

The absence of rendaku in some examples is suggestive:

⁰J/yama/ ‘mountain’

⁰J/tatibana/ ‘tangerine’



⁰J/yama+tatibana/
‘mountain tangerine’

Both ⁰J/pototogisu/ and ⁰J/tatibana/
are etymologically composite,
although OJ speakers may not have
analyzed them.

It is quite likely that their resistance
to rendaku developed for some other
reason(s).

Then, after their internal structure became opaque, the immunity was susceptible to reinterpretation as being due to (a new version of) Lyman's Law.

Conclusion

As promised, this presentation looked at three kinds of evidence to argue that Lyman's Law originated as an OCP-like constraint prohibiting prenasalization in consecutive syllables.

(1) Typology

Constraints on similar consonants in close proximity generally apply not to ordinary voicing but to more “spread out” features such as aspiration or prenasalization.

(2) Dialectology

At least some endangered dialects of Japanese with prenasalized voiced obstruents prohibit these marked consonants from occurring in adjacent syllables.

(3) Philology

Compounds recorded in phonograms in Old Japanese texts are consistent with a constraint against prenasalization in consecutive syllables.



ご清聴ありがとうございました

Possible etymology for rendaku-immune ⁰J/pototogisu/ ‘cuckoo’:

pre-⁰J/poto/ onomatopoetic

pre-⁰J/to/ quotative

pre-⁰J/naki/ ‘crying’

pre-⁰J/su/ ‘bird’

[pototo ^ŋg isu]

Mimetic morphemes are consistently
rendaku-immune in modern Japanese.

Possible etymology for rendaku-immune ⁰J/tatibana/ ‘tangerine’:

pre-⁰J/ta/ ‘paddy’

pre-⁰J/ti/ ‘path’

pre-⁰J/no/ genitive

pre-⁰J/pana/ ‘flower’

[tati ^mb ana]

The right-branch condition restricts
rendaku to a right branch in
constituent structure:

rendaku:



