Toward a Spelling Pronunciation Typology: Examples from Japanese

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Introduction
spelling pronunciation A pronunciation of a particular word which arises because of the influence of its spelling. For example, all the words like *missile*, *fertile* and *sterile* were formerly pronounced with short vowels in the last syllable, as they still are today in the USA. Since about 1900, though, these words have come to be pronounced in Britain with a last syllable rhyming with *mile*, because of the spelling. Similarly, the word *often*, which lost its [t] centuries ago, just like *soften*, *fasten*, *listen* and *castle*, has recently once again acquired a [t] for many speakers because of the spelling.
The Japanese writing system is routinely described as the most complicated system still in use in the modern world.
This complexity allows orthography and phonology to influence each other in a variety of different ways, some of which have no obvious analogs in cases involving alphabetic systems.
Today’s presentation will consider the notion of spelling pronunciation by examining some of these interactions between orthography and phonology.

The presentation presupposes a basic knowledge of the present-day writing system, which should be no problem for this audience.
Kana Spelling 1

Diphthongs
In 1946, one of the postwar orthographic reforms brought *kana* spelling into nearly perfect accord with present-day Tokyo pronunciation.

One remaining mismatch between *kana* spelling and pronunciation involves the long vowel */oH*/ (where */H*/ represents vowel length).
Modern Tokyo Japanese allows any sequence of two vowels in a row, although some of these sequences are rare or nonexistent unless the two vowels are on opposite sides of a morpheme boundary.

In particular, /ou/ is possible, and it contrasts with /oH/. 
For example:

/kə+uʃi/ [kəʊˈʃi] 子牛 ‘calf’
/kəH+ʃi/ [kəʊʃi] 講師 ‘instructor’
In native and Sino-Japanese words, long vowels other than /oH/ are normally spelled in hiragana as (C)V₁–V₁.

For example:

/yuH/ [jwː] タ ‘evening’: ゆう

/yu/ /u/
The most common *hiragana* spelling for /oH/, however, is a letter for (C)/o/ followed by the letter for /u/, i.e., <う>.

For example:

/boH/ [bo:] 棒 ‘rod’:

ぼう

/bo/ /u/
In the 1986 reaffirmation of modern *kana* spelling, the few mismatches between spelling and pronunciation are attributed to “respect for traditional spelling practices”.

There were several different ways to spell /oH/ before the 1946 reform, but (C)/o/+//u/ was most common.
Just as there is a distinction between /oH/ and /ou/, there is a
distinction between /eH/ and /ei/, but the latter is unstable.

In very careful pronunciation, most Tokyo speakers distinguish [ei] from
[eː], and this distinction is reflected in *kana* spelling.
For example:

\(/seN+bei/ \quad [sẽmːbei] \quad \text{‘rice cracker’}\)

せ ん べ い
se N be i

\(/noN+beH/ \quad [nõmːbeː] \quad \text{‘heavy drinker’}\)

の ん べ え
no N be e
However, in the natural pronunciation that is typical of ordinary conversation, there is a strong tendency for /ei/ to be pronounced [eː], i.e., just like /eH/.

On the other hand, /eH/ cannot be pronounced [ei].
/seN+bei/ [sēm̩bei] → [sēn̩beːi]
せ ん べ い
se  N  be  i

/noN+beH/ [nōm̩beːi] → [nōm̩beːei]
の ん べ え
no  N  be  e
It has been suggested that the careful pronunciation with [ei] of words like /seNbei/ ‘rice cracker’ is a spelling pronunciation, motivated by knowledge of *kana* orthography.
The reason so many modern Japanese words have *kana* spellings that imply 
/ei/ is presumably that they were pronounced with [ei] when the relevant spelling convention was adopted.
It is easy to imagine that, after this spelling convention was entrenched, /ei/ came to be pronounced as [ɛi], resulting in a merger of /ei/ and /eH/.

Dialect maps from the mid-20th century are consistent with this idea.
Dialects with both [ei] and [eː]
If this merger scenario is accurate, it implies that the modern Tokyo distinction between /ei/ and /eH/ has been resurrected relatively recently.

If so, spelling pronunciation is a plausible explanation for the resurrection.
Of course, it could be that spelling was not the only factor.

Spelling pronunciations are often just non-standard variants that have not actually died out completely and are promoted by conservative written representations.
It may be relevant that many prominent figures in the Meiji era national government were former samurai from the Satsuma and Tosa feudal domains (present-day Kagoshima and Kōchi prefecture).
Dialects with both [ei] and [eː]

- Tosa
- Satsuma
If spelling pronunciation is at least part of the explanation for the modern Tokyo distinction between /ei/ and /eH/, it is reminiscent of the spelling-motivated pronunciation of initial /h/ in many English words.

The change has affected a large class of items rather than an isolated word.
Returning now to the long vowel /oH/, hiragana spellings with the length represented by 〈う〉 (the letter for /u/) are the overwhelming majority among native and Sino-Japanese words that contain /oH/.
Furthermore, \textit{\<ou\>} has become the most popular the romanization for /oH/ in recent years, probably (at least partly) because the most common word-processor input method requires the user to type romanization that matches \textit{kana} spelling.
At present, words with /oH/ cannot be pronounced with [ou], no matter how they are romanized or spelled in kana.

For example, /zoH/ 象 ‘elephant’ is spelled ぞう, i.e., with the letters for /zo/ and /u/, but it is pronounced [dzɔː].
Is it possible that *kana* spelling, reinforced by unofficial romanization practice, could one day lead to to spelling pronunciations such as [dzow], implying /zou/?

Only time will tell.
Kana Spelling 2
Word-Initial /Nm/
Many older descriptions of Tokyo Japanese mention that words like /uma/ 馬 ‘horse’ are pronounced with a word-initial syllabic nasal: [m̩ma]. Although word-initial /N/ (the mora nasal) is marginally possible, the word for ‘horse’ is spelled うま, with the letters for /u/ and /ma/.
Although, [m̃ma] is undoubtedly possible in rapid speech in Tokyo today, the descriptions suggest that the careful pronunciation has changed and now matches the *kana* spelling.
Kana Spelling 3

The /ae/ Sequence
The vowel sequence /ae/ ([ae]<[aje] <[awe]) has been unstable historically.

For example, dictionaries list /hai/ as an alternative pronunciation for /hae/ 蟲 ‘fly’, and /kairu/ is a historically attested alternative pronunciation for /kaeru/ 蛙 ‘frog’.
The /ae/ sequence also behaves inconsistently in verb forms.

The citation form of an accented verb is normally accented on the second syllable from the end, so /ha↓iru/ 入る ‘enter’ is regular if /hai/ is a long syllable: /ha↓μισρυ/ (cf. /to↓μHσru/ 通る ‘pass’).
The citation forms /kaꜜeru/ 返る ‘return (intransitive)’ and /kaꜜesu/ 返す ‘return (transitive)’ are regular if /ae/ is also a diphthong:
/kæꜜeᵅru/, /kæꜜeᵅsu/.

But this analysis makes /haeꜜru/ 生える ‘grow’ an exception.
It seems better to treat /kaꜜeru/ and /kaꜜesu/ as the exceptions and analyze all of these words as containing three short syllables: /ha₁σeᵽᵽru/, /ka₁σeᵽᵽru/, /ka₁σeᵽᵽsu/. 
It could well be that at some time in the past, the two exceptional verbs were pronounced with the diphthong /ai/ rather than the sequence /ae/ (/kaˌiˈσu/), and that they were subsequently altered by spelling pronunciation while the accent locations remained unchanged.
Some phonologists who are native speakers of Tokyo Japanese have reported that they were surprised to learn as small children that the kana spellings of /kaꜜeru/ and /kaꜜesu/ have 〈ゑ〉 (e) rather than 〈い〉 (i) as the second letter.
There is also at least one published phonological treatment of modern Tokyo Japanese that, without comment, transcribes the citation form of the verb meaning ‘return (intransitive)’ in a way that is equivalent to /ka$\downarrow_{\mu}$i$_{\sigma}$ru/ (Hayata 1966: 64).
Ateji: Kanji Used as Phonograms
Although *kanji* are prototypically used as logograms, they can also be used as phonograms to spell out words for which there is no traditional logographic representation.

In its narrow meaning, the word *ateji* ‘assigned characters’ denotes *kanji* used in this way.
One example of ateji is 〈怪我〉 for /kega/ ‘injury’, a word of indeterminate but almost certainly native etymology.

The kanji 〈怪〉 can represent Sino-Japanese /ke/ ‘mysteriousness’, and the kanji 〈我〉 can represent Sino-Japanese /ga/ ‘self’.
But /kega/ ‘injury’ is not composed of these two Sino-Japanese elements.

怪 /ke/ ‘mysteriousness’ [S-J]
我 /ga/ ‘self’ [S-J]
怪我 /kega/ ‘injury’
Not surprisingly, in most cases of *ateji* the meanings of the morpheme(s) ordinarily represented by each *kanji* play some role in the choice of phonograms.

Consider, for example, 〈野暮〉 used to write /yabo/ ‘boorish’, another word of uncertain etymology.
The *kanji* 〈野〉 can represent Sino-Japanese /ya/ ‘field; wild’, and the *kanji* 〈暮〉 can represent Sino-Japanese /bo/ ‘livelihood’.

The word /yabo/ does not consist of these two elements, but their meanings are more appropriate than those of other possibilities.
The kanji 〈夜〉 can represent Sino-Japanese /ya/ ‘night’, and the kanji 〈墓〉 can represent Sino-Japanese /bo/ ‘tomb’.

Phonographically, 〈夜墓〉 is just as good as 〈野暮〉, but it is clearly inferior in terms of the semantic associations that are evoked.
Many examples of kanji phonograms (ateji) involve “deviant” readings.

For example, although now old-fashioned, the ateji 〈ಠҳ〉 were used to write /doicu/ ‘Germany’ (< Dutch Duits[land]).
Used as ordinary logograms, 〈独〉 can represent Sino-Japanese /doku/ or native /hito/, and 〈逸〉 can represent Sino-Japanese /icu/ or Sino-Japanese /iči/.
The point is that 〈独〉 is not used to represent a morph pronounced /do/, i.e., /do/ is a “deviant” reading.
A conceivable spelling pronunciation would be /dokuicu/ for ‘Germany’, reading 〈単〉 as “normal” /doku/ instead of “deviant” /do/.

However, there do not seem to be any actual examples along these lines.
It is true that /doku/ written 〈獨〉 can be used as a bound abbreviation for ‘Germany’ (cf. Anglo- vs. England), but this is like English 〈mar〉 in Delmarva Peninsula.
The ⟨mar⟩ in Delmarva is /mar/, even though Maryland is /mɛrələnd/.

Without going into the details, the basic principle seems to be that kanji in Japanese writing and letter strings in English writing tend to take “default” readings in abbreviations.
“Default” Kanji Readings
A phonological process known as postnasal voicing was automatic in Early Middle Japanese (800–1200) but became inactive in Late Middle Japanese (1200–1600).
Postnasal voicing affected many two-morpheme Sino-Japanese words, and the results are still evident today in examples such as /šiN+zaN/ 深山 ‘deep mountains’.
The Sino-Japanese morph /zaN/ does not appear word-initially, and the “default” Sino-Japanese reading of the kanji 〈山〉 is clearly /saN/, as in /saN+myaku/ 山脈 ‘mountain range’.
In many attested cases, postnasal voicing has been undone, and Kindaichi Haruhiko (1976:3) labeled such changes spelling pronunciations.

A well-known example is modern /teN+ka/ 天下 ‘under heaven’, which used to be /teN+ga/. 
The most common Sino-Japanese reading of the kanji 〈下〉 is /ka/ ‘down; low’.

The allomorph /ga/ does not occur word-initially and is quite rare.

Of 96 relevant two-morpheme Sino-Japanese words in a large dictionary, 94 end in /ka/ and 2 in /ga/.
Thus, there is an obvious temptation to replace /ga/ with /ka/.

This temptation is not necessarily motivated by orthography, however, since there is always pressure to realize a morpheme consistently ("anti-allomorphy").
It could well be that orthographic and phonological “analogy” were both involved in undoing postnasal voicing.

But it is not clear how to disentangle the two factors and assess the influence of each independently.
A native Japanese word denoting a kind of giant radish is first attested in an early 8th-century text:

\[ O^J/\text{opo}+\text{ne}/ \]

cf. \[ O^J/\text{opo}/ \] ‘big’ (a bound morph)
\[ O^J/\text{ne}/ \] ‘root’
If this word had survived into modern Tokyo Japanese, it would have the form /oH+ne/. But the word in use today is Sino-Japanese /dai+kōN/. 
The early 8th-century attestation is written phonographically, but logographic 〈大根〉 is first attested in the 10th century.

In the present-day writing system, the *kanji* 〈大〉 can represent native /oH/ ‘big’, and the *kanji* 〈根〉 can represent native /ne/ ‘root’.
Throughout the history of the Japanese writing system, however, many *kanji* are logographically polyvalent.
In the case under consideration:

大 /oH/ ‘big’ [native]
/dai/ ‘big’ [S-J]
/tai/ ‘big’ [S-J]

根 /ne/ ‘root’ [native]
/koN/ ‘root’ [S-J]
If a less-than-confident reader encounters 〈大根〉 in a text, it is easy to imagine him or her misreading the word as Sino-Japanese rather than as native Japanese.

The pronunciation /dai+kōN/ is first attested in the early 15th century.
Of course, this kind of logographic polyvalence is not a necessary condition for replacing a native vocabulary item with a borrowed one.

To give just one example, compare the 17th-century replacement of native English *self-slaughter* with Latin-based *suicide*. 
On the other hand, the *kanji* logograms in the Japanese writing system arguably play a role. Even if the appearance of a word like `/dai+koN/` is not just the result of a reading error, the *kanji* used to write native words bias the coining of Sino-Japanese synonyms.
Semantically, Sino-Japanese /i/ ‘great’ would also be a reasonable substitute for native /oH/ ‘big’, but this /i/ is written logographically with 〈偉〉, not with 〈大〉.

大根 /oH+ne/       /dai/〈大〉=/oH/

/i/〈偉〉=/oH/
Peasant Readings
Writing researchers use the term semantic determinative to denote an element written next to a graph or sequence of graphs to help a reader identify the intended word by specifying a meaning category.
To illustrate with an imaginary example, suppose that the logogram \( ⟨♒⟩ \) represents the English word *water* and the logogram \( ⟨⚇⟩ \) represents the English word *see*. 
The English word *sea* is homophonous with *see*, so ⚇ could be used as a rebus writing for *sea*.

The drawback is that ⚇ now ambiguous, since it can represent either *see* or *sea*. 
A solution to the problem is to use ⟨♒⟩ as a semantic determinative, writing ⟨♒⚇⟩ to represent sea unambiguously.
The reader is not supposed to pronounce anything corresponding to the semantic determinative 〈♒〉 in 〈♒⚇〉; it is a kind of “silent letter” that provides a hint about something next to it.
The so-called radicals in Chinese characters are essentially semantic determinatives.

For example, when characters were first invented, the words corresponding to modern Mandarin \texttt{wù 物} ‘thing’ (< ‘creature’) and \texttt{wù 勿} ‘do not’ were homonyms.
The modern character 〈勿〉 originated as a depiction of an animal and was used to write the word meaning ‘creature’, but it was then exploited as a rebus writing for the word meaning ‘do not’.
As a result, the logogram 〈勿〉 became ambiguous, and another existing character was added as a semantic determinative to provide an unambiguous spelling for the word meaning ‘creature’.
The semantic determinative was the ancestor of the character 〈牛〉, which was used as a logogram for the ancestor of modern Mandarin *niú* ‘ox’.

The combination produced the ancestor of modern 〈物〉, and the original character 〈勿〉 continued to represent the word for ‘do not’.
The difference between the semantic determinatives in the Chinese system and those in other systems (e.g., Sumerian, Akkadian) is superficial.

In the Chinese system, the determinatives were consistently incorporated into other graphs rather than remaining separate as silent letters.
Thus, the single character 〈物〉 can be treated as a combination of the meaning indicator 〈牛〉 and the pronunciation indicator 〈勿〉.

The great majority of all the characters ever created for Chinese are composites like 〈物〉.
The Japanese writing system has preserved the semantic determinatives of the Chinese system in the sense that many *kanji* represent Sino-Japanese morphemes for which the composite graph structure (meaning indicator plus pronunciation indicator) has carried over.
Present-day readers know that a pronunciation indicator in an unfamiliar *kanji* can help to zero in on the correct pronunciation of a Sino-Japanese morpheme represented by that kanji, although pronunciation indicators are just hints and vary widely in terms of reliability.
There are well-known examples of a misleading pronunciation indicator having induced Japanese readers to read a *kanji* incorrectly, and in some of these cases, the “incorrect” reading has proved so compelling that it has competed with or even driven out the “correct” reading.
Probably the best example is 〈輸〉, which represents /yu/ ‘transporting’, as in /yu+nyuH/ 輸入 ‘importing’ and /uN+yu/ 運輸 ‘transportation’.

The meaning indicator in 〈輸〉 is 〈車〉, which can represent Sino-Japanese /ša/ ‘vehicle’ (cf. Mandarin chē).
The pronunciation indicator in 已久 is (a slightly simplified version of) 亖, which is attested as a representation of an obscure Sino-Japanese morpheme /yu/ with a wide semantic range.

For all practical purposes, however, 亖 is not used in the system today.
The fact of interest here is that the historically correct reading of 輸 is /šu/ (cf. Mandarin shū), not /yu/. One large dictionary lists ten other kanji that contain this same pronunciation indicator, each associated with a different Sino-Japanese morpheme pronounced /yu/.
Only three of these ten are used frequently enough to be on the Japanese government’s list of kanji recommended for everyday use:

喩 for /yu/ ‘metaphor’
愉 for /yu/ ‘pleasure’
諭 for /yu/ ‘reasoning’
The modern Mandarin morphemes represented by these ten kanji are all pronounced *yú* or *yù* (segmentally just *[y]*)).

Given this consistency, it is no wonder that Japanese readers were tempted to bring 〈輸〉 into line and read it as /yu/ rather than /šu/.
The historical explanation for /šu/ (and Mandarin shū) is that the Old Chinese morpheme meaning ‘transporting’ goes back to a prehistoric form containing a causative prefix *[s].
According to one reconstruction (Schuessler 2007), the Old Chinese ancestors of the relevant Mandarin morphemes now pronounced yú or yù were *[lo], *[loh], or *[loʔ], whereas the ancestor of shū〈輸〉 was *[lo].
When Chinese characters were first invented for ancient Chinese, it presumably would have been easy to group *[lo]* together with *[lo]*, *[loh]*, and *[loʔ]* as near homonyms.

But subsequent changes in Chinese caused *[l]* and *[l]* to diverge, obscuring the motivation for ⟨輸⟩ in ⟨輸⟩.
The much later borrowing into Japanese was initially faithful to Middle Chinese pronunciation, but the pronunciation /šu/ for 〈輸〉 is now obsolete.

The label spelling pronunciation seems entirely appropriate for cases like this change from /šu/ to /yu/. 
The Japanese word for this phenomenon, first attested in the early 18th century, is *hyakushō-yomi* 百姓読み ‘peasant reading’.

This disparaging term reflects a culturally entrenched contempt for people engaged in agriculture.
The Japanese term is thus more blatantly insulting than English spelling pronunciation, but there is no doubt that members of the educated elite in English-speaking countries tend to regard spelling pronunciations as evidence of ignorance or stupidity.
It is gratifying to see that, in shifting the reading of 〈輸〉 from /šu/ to /yu/, the “peasants” have prevailed.
Conclusion
This presentation has considered four kinds of interaction between orthography and phonology in Japanese.

The label spelling pronunciation seems apt in the phonographic cases: /eH/>/ei/; /Nm/>/um/; /ai/> /ae/.
The picture is not so clear, however, in the logographic cases: /teN+ga/> /teN+ka/; /oH+ne/> /dai+kon/. 

It is not surprising that the game changes when morphological units get involved.
The “peasant reading” case is perhaps the most interesting, since nothing exactly like it is possible in phonographic (alphabetic or syllabic/moraic) writing.

A complete spelling pronunciation typology has to be able to accommodate it.
Thank you for your kind attention.
ご清聴ありがとうございました