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Abstract

This paper explores a peculiar loan phonological pattern in which borrowings from Japanese and Spanish with a word-final mid-front vowel are raised to a high-front vowel in the usual English rendering. After the basic Japanese and Spanish corpora are introduced and discussed, explanations for this phenomenon are considered: it is clearly NOT any part of the 'single-step' Great Vowel Shift (= GVS) 'proper', although any analysis concerning the GVS is going to be controversial. Instead, it is suggested that we are observing one of the subsequent, secondary 'two-step' sound shifts which occurred in the wake of the GVS, namely the shift of Middle English [ɛ:] first up to [e:] and subsequently up to [i:].

Key words: vowel raising, English loan phonology, Japanese & Spanish loans, Great Vowel Shift

1. Introduction

This paper is an exploration of a peculiar loan phonology phenomenon as exemplified by the word-final vowels of Japanese and – to a lesser extent – Spanish loanwords into English. The title of this essay is, however, whimsical (perhaps excessively so) in that it seems to suggest that there is something about Cervantes' great Spanish novel *Don Quixote* (1605-1615) or that work's namesake main character which has an effect on English loanwords. This is by no means the case. Rather the normal English pronunciation of the final vowel in the name *Don Quixote* is itself but one characteristic – although a conveniently emblematic – example of a general loan phonological pattern in which foreign words ending in a mid-front vowel [e] are commonly rendered by many speakers into English loans with a final high-front vowel [i].

My interest in this topic was initially sparked by an observation likely obvious to most speakers of both English and Japanese: this is that a number of Japanese words which end with a mid-front [e] vowel are converted into a final high front [i] vowel in their English loan pronunciations. The examples which come quickest to mind are the trio *kamikaze*, *karaoke*, and *karate*. In each, the native Japanese final [e] is raised to [i] in the English borrowing. The following transcriptions of the English pronunciations of these loanwords are taken from the *Concise Oxford English Dictionary* (2001: CD-ROM edition)¹ (here abbreviated as = *COD*); in each case, the main point is the contrasting original-versusloan pronunciations of the words' final vowel, which is bold-faced in the following phonetic transcriptions:

(1) Three Japanese loans into English

Loanword	Original Japanese Pronunciation	English Loan Pronunciation (COD)
kamikaz e	[kamikaze]	[kamīkaz i]
karaok e	[karaok e]	[karıəʊki]
karat e	[karat e]	[kərat i]

In this paper, I argue that the final vowel raising in these three words is not an isolated phenomenon. The immediately following section shows that Japanese and Spanish words which end with a final mid-front vowel are routinely – though not invariably, for there are conflicting influences – raised to the high front vowel in their English loan forms. The last section considers possible sources of the vowel raising.

2. Borrowings with a final "e" from Japanese & Spanish

Japanese. I begin with the pronunciation of loans from Japanese because this is where my interest in this matter originated and because the Japanese-loan corpus is relatively small and manageable. In the English-language computer-readable dictionaries that I searched, the largest number of tokens of Japanese loans into English that end in a final "e" was found in the *Webster's Third New International Unabridged Dictionary* (2003: CD-ROM edition) (here abbreviated as MW3).² A relatively large number of hits were on very uncommon words, which is surely to be expected when searching in an unabridged dictionary. Nevertheless, of the total of 43 hits, for a number of reasons,³ the search actually yielded only 17 (= 40%) true Japanese borrowings into English which ended with "e" in Japanese and ended in a vowel in English. These "true hits" are given in Table 1, along

with the date of the first attested use in English if it is given in the *Oxford English Dictionary* (= *OED*):

Loanword	Final Vowel	OED	Loanword	Final Vowel	OED
In MW3	In MW3		In MW3	In MW3	
hibitai	IPA [ai]		shiitake	IPA [i]	1877
kamikaze	IPA [i]	1896/1944	sumi-e	IPA [e]	1938
karaoke	IPA [i] IPA [e]		ukiyo-e	IPA [e]	1879
karate	IPA [i]		ume	IPA [e]	
matsutake	IPA [i] IPA [e]		urushiye	IPA [i] IPA [e]	
momme	IPA [i]	1727	wakame	IPA [ɛ]	1950
тите	IPA [i]		yamato-e	IPA [ə] IPA [e]	1879
netsuke	IPA [i] IPA [e]	1883	yosenabe	IPA [i]	
sake	IPA [i] IPA [1]	1687			

Table 1: Pronunciation of Japanese Loanwords in English

Of the 17 relevant Japanese loans, a large majority, 12 (= 71%), are said to have a final high [i] vowel as their primary or only English pronunciation. This suggests that vowel raising has been the norm in loans from Japanese. In particular, I find it remarkable that the final two vowel sequence in the Japanese word *hibitae* (a technical term referring to a soft lightweight Japanese silk in plain weave) is rendered as *hibitai* in the English loan. On the other hand, I am not at all surprised that some English loanwords (= 6, namely *karaoke, matsutake, netsuke, urushiye wakame*, and *yamato-e*) are said to have primary or variant pronunciations which closely approximate the original mid-front Japanese vowel. I think that it is only natural that some speakers will echo the original Japanese pronunciation, especially if the term comes from a specialized technical or socio-cultural domain, which would suggest that users are more familiar with Japanese culture and

the native Japanese pronunciation of the terms. Indeed it is a commonplace in the field of loan phonology that those fluent in the foreign language or those who are "members of a group of experts using specialized vocabulary" are especially likely to preserve all or most of the features of the original (Broselow 2006: 286). I would hazard that this is the reason that four Japanese compound loanwords ending with -(y)e, meaning "(artistic) picture," are normally or alternatively rendered as the original mid [e] vowel in the English loans.

In sum, with a few exceptions mostly in which loans conservatively maintain their native mid-front vowel "e" in expert domains, there is a general pattern such that the final vowel of Japanese borrowings ending in the mid [e] are regularly raised to high [i] in their English loan pronunciations. This pattern is shown graphically in Chart 1, where "primary" means that the vowel is either the only one recorded in the *MW3* or else is the first of alternatives.

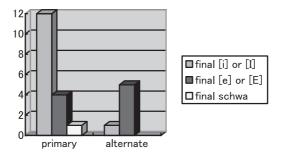


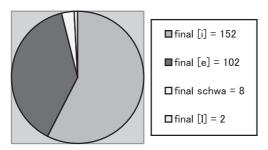
Chart 1. Final vowel pronunciation of loans from Japanese

To repeat, I think that it is only to be expected that some loans retain a conservative mid-vowel or employ it as an alternative pronunciation,

especially in high-profile Japanese socio-cultural domains, such as that of a fine art like Japanese painting. I make rather similar claims about the Spanish loanwords into English that are examined in the following paragraphs.

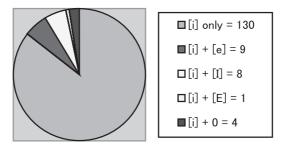
Spanish. There were consistently 534 hits in the *MW3* on an advanced Boolean search asking for Main Entry words ending in the letter "e" and an Etymology containing the word *Spanish* – again many words being uncommon. However, just over half, 270 to be exact, of these hits are irrelevant to our interests for one reason or another.⁴ Among the 264 true Spanish-loan hits, there were four English loan pronunciations,⁵ two of which are minor and seem to be of no particular relevance to present research interests. The first minor loan pronunciation (a) occurred in the 2 loans *canoe* and *barbeque*, which end in the high back vowel [u]. The second minor loan pronunciation (b) appeared in 8 loans which were said to end with schwa [ə], as in *tilde*. The two major loan pronunciations were (c) high [i] with 152 primary hits and (d) mid [e] with 102 primary hits. These results are graphically shown in Chart 2:

Chart 2: Final vowel in loans from Spanish



Final [i] vowel. The largest number of English loans – 152 (= 58% of all true hits among loans from Spanish) – ended with high [i]. Of these, by far the most (= 130) were said to have [i] as the only pronunciation; commonly-used examples of this category of loans include *adobe, apache, guacamole, machete*, and *peyote*. Another 18 tokens were said to have [i] as their primary (= first listed) pronunciation, although variants were possible; these include 9 words like *comandante* and *don quixote* itself which have an alternate pronunciation with the mid [e] vowel and 8 words like *chile* and *vigilante* which are said to have an alternate pronunciation. Finally, four words, including *coyote*, were said to have pronunciations of either [i] or no final vowel at all.

Chart 3: Primary [i] final vowel in loans from Spanish



Of these hits with a primary [i] final vowel, two were said to have a second variant pronunciation: *bagre* (= [i e_{3}] and *dengue* (= [i e_{1}]). For present purposes, however, the main point is that nearly 60% of Spanish loanwords with a final "e" are raised to high [i] in their English pronunciation.

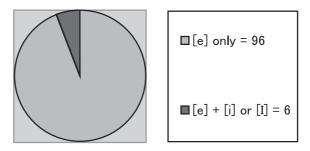
The semantic, socio-cultural domains of these loans with a primary final [i] from Spanish are quite diverse, but there are some clear tendencies. First of all, most of these Spanish loans entered English via New World Spanish rather than from continental, Old World Spanish. Loans WITHOUT New World associations include (again) don quixote along with grandee, monte (= a card game), and sangaree (= an alcoholic drink). However, loans with New World associations are the norm. At least 115 (= just over three-quarters) of these final-[i] borrowings clearly reflect the influence of New World American Spanish. Some, like apache and comanche, refer to tribal groupings of native American peoples, ten in total. Many of the raised-to-[i] loans (at least 55 = 36%) refer to American plants or plantderived products, and many of these plant names ultimately derive from the terms used in native American languages, particularly Nahuatl; commonlyused examples would be *chile* (= the hot pepper; Variant of *chili*) from Nahuatl chilli, guacamole from Nahuatl ahuacamolli, pevote (= the cacti or drug derived from them) from Nahuatl peyotl, and tamale from Nahuatl tamalli. Others refer to American animals or fishes, including coyote from Nahuatl *coyotl* and the tropical aquatic mammal *manatee* said to probably be of Cariban origin.

Final [e] vowel. The second major loan pronunciation among Spanish borrowings was with the conservative final mid [e] vowel. A final [e] vowel was recorded in 102 cases, of which just six are also stated to have an alternate pronunciation with a high front vowel, as in *chipote* (a smoked hot chili pepper used in Mexican cooking) and in one case, *caique* (a light skiff), also with a second alternate schwa pronunciation. All other of the true hits are said to have only the mid [e] vowel pronunciation in English.

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Unlike the final [i] vowel loans, of which I was familiar with a fair number of the tokens, with the final [e] words, I knew only a few of these Spanish borrowings, including *padre* and *infante*; perhaps this may indicate that the final [e] group words are less widely used by North American English speakers.

Chart 4: Primary [e] vowel in loans from Spanish



As with final [i] loans from Spanish, the semantic, socio-cultural domains of the loans with a conservative final [e] from Spanish were quite diverse. One tendency shared with final [i] vowel loans is that most final [e] vowel loans (= nearly three-fourths) also come by way of New World Spanish. Another similarity is that the most common semantic domain (at least 36 = 35%) is again names of plants or plant-derived products, a number of which once again ultimately derive from words used in native American languages such as the tree names *nance* from Nahuatl, *molle* from Quechua, and *yaxche* from Mayan. There are again a sprinkling of terms for native American birds, as *pinche* a South American tarmarin, animals, such as *conepate* a hog-nosed skunk (from Nahuatl), insects, as *pique* a chigger (from Quechua), and drinks, as *balche* a fermented drink

(from Mayan).

The most striking difference in the final [i] and final [e] data sets is that this final [e] group includes terms from such high-profile Spanish cultural concerns as bullfighting and flamenco dance. For instance, each of the 7 tokens relating to bullfighting - including *estoque*, a matador's sword, remate, a cape movement, and remate, a whirling pase - end with the conservative mid vowel. I think that an English speaker knowing the names of the various implements and movements of bullfighting (e.g. Earnest Hemingway) is almost surely going to be an *aficiando* and be aware of the Spanish pronunciation of the words, for they are likely to be experts using specialized vocabulary (Broselow 2006: 286). I am inclined to believe that this is also true for words from other characteristically Spanish cultural activities such as flamenco (e.g. cante hondo) and ballroom dancing (e.g. corte), and if one is interested enough in Spanish royalty to be able to distinguish the oldest son of the king and queen (the *principe*) from younger siblings (the *infante*), then one is likely to be well aware of the Spanish pronunciation of these terms. In addition, the names given to 15 groups of native American peoples ended in the conservative mid vowel, including the *janambre*, *eudeve*, and *cotoname* peoples of Mexico.

In sum, in loanwords from Japanese ending with a final mid-front vowel "e," fully 71% had raised the final vowel to [i] in the English pronunciation. True, some loanword pronunciations are conservative and have a mid vowel as their alternate or primary form, but these words tend to be from "expert" domains like the art of Japanese painting. Although the pattern of vowel raising is somewhat weaker among loans from Spanish than among loans from Japanese, it is still the case that the majority (= 58%) of these

loans end with a final high [i] vowel in their primary English pronunciation, while a substantial minority of tokens (= 39%) are more conservative and retain the Spanish mid [e] vowel. The loanwords in both the final [i] and final [e] groups tend to come into English by way of New World Spanish and typically refer to native American flora and fauna or peoples. The most striking difference is that the conservative final [e] loans include a number of terms iconic of Spanish cultural concerns such as bullfighting and flamenco dancing that one would expect to be used only by someone with deep interest in and understanding of Spanish culture and language.

3. Considerations & Speculation

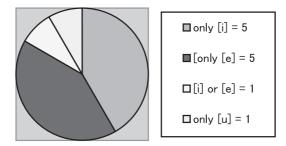
In the previous section, we saw that there is a common pattern among loanwords into English that end with a final mid [e] vowel in the source language: borrowings from Japanese (most always) and Spanish (most often) are rendered with a high [i] in the English pronunciation. I want to begin this section with considerations on what this loan-phonology phenomenon is likely not – specifically it is NOT any obvious result of what we normally think of as the Great Vowel Shift (here abbreviated as GVS) 'proper'⁶, although later on I will suggest there IS a possible connection to subsequent, post-GVS sound shifts. In any case, to see what our vowelraising loanword phenomenon is NOT, we need to turn to a quick review of the historical sound changes called the GVS and the vowel changes that occurred during it.

NOT the Great Vowel Shift #1. In the case of Japanese, the first reason the vowel raising phenomenon in loanwords that we are investigating

cannot be a result of the Great Vowel Shift 'proper' is that the greater part of the GVS's sound changes were completed long, long before the bulk of the Japanese loanwords in question entered English. The GVS affected all Middle English long vowels and is said to have occurred in Early Modern English (= Renaissance English), roughly between the 15th and early 17th centuries (e.g. Freeborn 2006: 30; McMahon 2006: 147, 150; Nevalainen 2006: 120-22; Raumolin-Brunberg 2006: 164; Baugh & Cable 2002: 238-9; Fennell 2001: 159; Smith 1999: 131; Williams 1975: 343-50; etc.), although certain subsequent sounds shifts continued to occur in later periods, an important matter which I return to below. The general point is that it is widely agree that "most of the long vowels had acquired at least by the sixteenth century (and probably earlier) approximately their present pronunciation" (Baugh and Cable 2002: 239). In the case of Japanese borrowings, however, the earliest loan documented in the OED, namely sake, appears later in 1687, and most other OED dates are much, much later, including momme (1727), shiitake (1877), ukiyo-e and yamato-e (1879), netsuke (1883), kamikaze (1896, 1944), soogee (1914), sumi-e (1938), and wakame (1950).

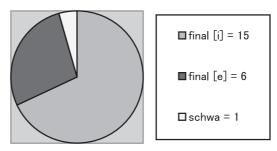
The Spanish corpus is different and is, in some ways, quite startling. Some of the Spanish loans entered English during the Early Modern Period when the GVS 'proper' was yet active. If we rather arbitrarily select 1607 – the date when *don quixote* is first attested in English – as the end point of Early Modern English, then there are 12 early-dated loans in the *OED*; additional examples include *machete* (1598), *padre* (1584) and *canoe* (1555).⁷ The final vowel pronunciations of all 12 early loans is summarized in the following chart:

Chart 5: Pronunciations of final vowels in early loans from Spanish

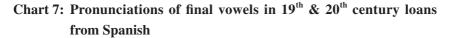


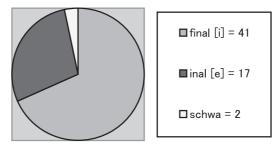
Obviously, the problem is that there is no clear "pattern" one way or the other. Half the vowels are raised, and half aren't. Next, if we again rather arbitrarily choose the last year of the eighteenth century, the time period often used to date the end of secondary, post-GVS sound shifts, the *OED* gives initial-use dates for 22 words arriving in English in the 17th or 18th centuries;⁸ examples include *adobe* (1748), *barbecue* (1697) and *caique* (1625). A summary of the pronunciations of the final vowel in these 22 loans is shown in Chart 6:

Chart 6: Pronunciations of final vowels in 17th & 18th century loans from Spanish



During this time period, most loans (= 68%) were raised to [i], but a substantial minority (= 32% including schwa) retained a conservative mid vowel. Lastly, for loan words entering English during the 19^{th} and 20^{th} centuries, the period with the greatest number of borrowings, the *OED* gives 61 loans, including *tilde* (1864), *vigilante* (1856), and *dulce* (1844).⁹ A summary of the final vowel pronunciations of these words is given in Chart 7:





In the last two centuries, most loans (= 67%) again have raised final vowels, while (again) a substantial minority (= 31% including schwa) retain a conservative mid vowel.

I had originally anticipated that there would be some strong correlation between the time-period when the Spanish loan-word entered into English and the English pronunciation of the final "e." Specifically, I had expected loans entering in Early Modern English to have raised vowels, while those entering in most recent times would not. This turns out not to be the case. The earliest loans split evenly between a conservative [e] and a raised [i]. Ever since the beginning of the 17th century, there has been an astonishingly

consistent (at least to my mind) tendency for Spanish loans to have raised final vowels – 68% in the 17^{th} and 18^{th} centuries and 67% in the 19^{th} and 20^{th} centuries, with an equally consistent tendency for a healthy minority of words to retain a conservative non-raised vowel pronunciation – 32% in the 17^{th} and 18^{th} centuries and 31% in the 19^{th} and 20^{th} centuries. In sum, there has always been a split between Spanish loan words retaining a conservative mid vowel and those with a raised vowel. Clearly, whatever is happening, it is not restricted to Early Modern English and the GVS 'proper'. I'll return to this matter below.

NOT the Great Vowel Shift #2. The second reason that the vowel raising phenomenon in loanwords which we are concerned with is no obvious result of the Great Vowel Shift 'proper' is that the GVS is, above all else, a widespread PATTERN of sound shifts (McMahon 2006: esp. 154-76; Nevalainen 2006: 120-22; Smith 2006: 140; Fennell 2001: 159). What happened was that ALL Middle English long vowels "gradually came to be pronounced with a greater elevation of the tongue and closing of the mouth, so that those that could be raised...were raised, and those that could not without becoming consonantal (*i*, *u*) became diphthongs" (Baugh & Cable 2002: 238-9). Yet the question of exactly what that "pattern" is and when it happened has been at the center of one of the biggest controversies in English historical linguistics (McMahon (2006: esp. 154-76); Lass 1999: esp. 72-116).

Yet, for present purposes, it is sufficient to focus on a core set of early changes that are widely accepted as having occurred in Early Modern English and are least controversial (e.g. McMahon 2006: 171; Raumolin-Brunberg 2006: 164). The following diagram is adapted from McMahon (2006: 171):

Diagram 2: The Great Vowel Shift 'Proper'

time i: \rightarrow ei <i>or</i> əi (now ai)	(now au) əu or ou \leftarrow u: loud
К	R
green e:	o: boot

These sound shifts can also be listed in table-form, as in the following which is a modification based on Baugh & Cable (2002: 239) and Nevalainen (2006: 122):

Table 2: Changes in long vowel pronunciation from ME to EMdE

	ME (= Chaucer)	EModE (= Shakespeare)	SOUND C	CHANGE
five	[fi:f]	[faɪv]	high	[i:] →[ai]
meed	[me:də]	[mi:d]	high-mid	$[e:] \rightarrow [i:]$
down	[du:n]	[daun]	high	[u:] → [au]
root	[ro:tə]	[ru:t]	high-mid	$[0:] \rightarrow [u:]$

For our purposes, the essential "problem" is that the vowel-raising phenomenon with word final-e loans introduced earlier is completely isolated – none of the other "expected" sound shifts of the GVS PATTERN 'proper' occur in loans from Japanese, as we see in the following paragraphs.

Final "o" vowel. Let us start with the loan pronunciation of the corresponding mid-back vowel [o]. As we see in Table 2, if the GVS 'proper' were somehow involved, we would expect final [o] loans to be raised to high [u], as in the changed pronunciation of *root* in ME [ro:tə] to EModE [ru:t] just noted. However, in Japanese loanwords ending with a final midback "o", no such change is evident in the least. Rather, of the 49 hits in the

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MW3's search for Japanese loans with a final "o", 46 were "true hits,"¹⁰ and, of these, 44 have a primary final [o] in the English loan. Examples include words such as *judo*, *pachinko*, and *bento box*. A mere 2 of these hits, namely *kakemono* and *makimono*, are said two have a variant pronunciation with a final schwa. Finally, two other loan words, *kimono* and *yamato-e*, are said to have a primary pronunciation with a final schwa and [o] as a variant. All variants are mid – not high – vowels. The pronunciation of Japanese loans ending in "o" is summarized in Chart 8.

Chart 8: Pronunciations of final [o] vowels in loans from Japanese



This chart of the loan pronunciations of final [o]-vowel borrowings from Japanese is in stark contrast to what we saw earlier with regard to Japanese final [e]-vowel words. With Japanese (and Spanish) loanwords having a final [e], what is NORMAL is that the vowel is raised to [i]. The conservative pronunciation retaining [e] occurs but as a minority form. With Japanese loanwords having a final [o], however, what is NORMAL is that this midback vowel is preserved in the English pronunciation. There are no cases of vowel raising. 100% of the loanwords preserve the mid [o] vowel, almost always (= 95%) as the primary pronunciation.

Final "i" vowel. The same conservative non-GVS-like loan pronunciation is found among Japanese loans ending in a final high front [i]. Again, if the GVS 'proper' were somehow involved, we would expect that the high vowel would be converted to the diphthong [ai], as the pronunciation of *five* in ME [fi:f] is changed to [faɪv] in EModE. Yet this is (again) by no means the case. There were 92 hits in the MW3's search for Japanese loanwords into English that ended in "i". Of these, just two were false hits on Variant pronunciations, and 5 more were false hits resulting from the misleading final -ei spelling of words like sensei "teacher", whose romanized spelling retains an off-glide that in fact had disappeared from standard spoken Japanese in the eighteenth century when the vowel sequence coalesced into long [e:] (Shibatani 1990: 161; Vance 1987: 13; Miller 1967: 228). Of the remaining 85 "true hits,"¹¹ 12 were on loans which end with the two-vowel sequence-ai in Japanese, such as samurai and bonsai, all of which were faithfully rendered with the English diphthong [ai], and 1 was on a loan ending with the Japanese two-vowel sequence [oi], *koi* "a carp", which was again preserved in the English diphthong [oi]. The 72 other loans ending in [i] in Japanese all preserved the high front vowel in their English pronunciation, with the picayune quibbles that *hara-kiri* and *teppanyaki* were said to have a variant [1] form, and *kami* was given only the lax [1] pronunciation. Remarkably – especially in contrast with the variably we saw in loan pronunciation of words with a final "-e", all borrowings (= 100%) ending with "i", "ai" or "oi" preserved their original pronunciations in their English loan pronunciations. There was no sign of the diphthongization of high vowels which occurred in the GVS.

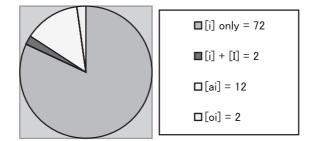


Chart 9: Pronunciations of final [i] vowels in loans from Japanese

Final "u" vowel. Lastly, let us turn to loanwords from Japanese that end in high back [u]. Once more if the GVS were somehow involved, we would expect the high back [u] of laons to mimic ME words like *down* [du:n] which became diphthongized, as in [daun]. But yet one more time, this isn't what happened. There were 42 hits in the *MW3*'s search for Japanese loanwords into English that ended in "u". Of these, 3 were false hits. Of the remaining 39 "true hits,"¹² 38, including *fugu* and *tofu*, preserve a final [u] in the English loan. A single token, *nanchaku* of Bruce Lee karate movie fame, lists [u] as the alternate pronunciation and no final vowel as the primary pronunciation. If we allow this alternate pronunciation of *nanchaku* to count, then (yet again) all borrowings (= 100%) ending with final "u" preserved their original pronunciations in the English pronunciations. No diphthonization occurs.

□[u] only = 38 □0 + [u]

Chart 10: Pronunciations of final [u] vowels in loans from Japanese

In sum, there are two reasons why the raising of Japanese loans with a final "e" in their English pronunciation can not be a result of the Great Vowel Shift 'proper': (i) the first is that the GVS was over before most of these Japanese loans entered English, and (ii) the second is the raising of final "e" is isolated, and there is no other sign of the PATTERN of sound shifts which characterize the GVS. Although the data will not be presented in detail here, the Spanish loan evidence is equally <u>un</u>supportive of any GVS 'proper' involvement. We might guess that very early Spanish loans with a final "e" which entered in the Early Modern English period to "share in" the vowel raising of the GVS, but this actually happens only half the time. Even more telling against GVS 'proper' influence is that the vowel shifts continue on in the four centuries since the GVS 'proper' is ordinarily said to have ended.

Later Sound Shifts. The sound changes of the GVS 'proper' discussed above occurred in the Early Modern English period between the 15th century and the early 17th century. However, historical linguists caution that the sounds shifts didn't stop at this point of time. Indeed, in some ways

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additional sound changes are the norm. For instance, McMahon (2006: 157) states that

the majority of originally low-mid front vowels eventually shifted two steps, to high – hence modern English has /i:/ deriving from two different sets of Middle English words, namely *sea*, *leave* (which had Middle English /ɛ:/ and which raised by two steps) as well as words like *green*, *queen* (which had Middle English /e:/ and only raised by a single step.) Likewise, Middle English /a:/ in *name* underwent a double raising. All these second-step raisings are typically regarded as later developments which took place after the Great Vowel Shift 'proper'.

McMahon continues on to note that "typically, however, the second step raisings for some front vowels are excluded" from discussion and diagrams of the GVS (2006: 159). For example, Baugh and (2002: 239) give only the first step of what would ultimately be two steps of raising of Middle English low mid [ε :] and low [a:]:

Table 3: Changes in long vowel pronunciation from ME to EMdE

	ME (= Chaucer)	EModE (= Shakespeare)	SOUND	CHANGE
clean	[klɛ:nə]	[kle:n]	low-mid	[ε:]→[e:]
name	[na:mə]	[nɛ:m]	low	[a:]→[ε:]

Secondary sound shifts moved the vowel in *clean* up a second step to high [i:] and in *name* up a second step to high mid [e:]. The connection of these secondary sound shifts to the concerns of this paper is that, like the GVS 'proper', one of the changes is that a mid front vowel is raised to high front, leading to the merger of what were once two distinct mid front vowels.

Suggestion. It is not implausible that the vowel raising in loans from Japanese and Spanish discussed above are the results of these later, secondary or tertiary sound shifts that occurred in the wake of the GVS proper. The final vowel of Japanese loan *sake* may have been raised by the same linguistic forces that raised the mid-front vowel of native English *clean*.

However, it is difficult to make such a claim much stronger than a suggestion. One problem is that I have found the literature surprisingly vague about when such secondary sound shifts occurred. For instance, for the second step of the two-stage raising of Middle English $[\varepsilon:] \rightarrow [e:]$ \rightarrow [i:], Baugh & Cable say, on the one hand, that is the "most important" development that has taken place since" the GVS and, on the other, that it "occurred at the end of the seventeenth century and had become general by the middle of the eighteenth" (2006: 239). I don't know how to interpret the phrase "had become general" in this context: Does it mean that the shift moved mid vowels up to high for most relevant words in the eighteenth century - and then stopped? Or does is the change more open ended extending into the nineteenth and twentieth centuries when most loans from Japanese entered English? Another expert, Williams (1975: 346), pushes the relevant end-point of the shift from /ɛ:/ to /i:/ as late as 1850, where the final shift up from long /e:/ begin in 1550 and continued for some 300 years or more. Even more frustrating to me are hints that post GVS 'proper' sounds shifts are "not uniformly complete in all dialects to this day" (Millward 1989: 219) and "may even continue to have affects on contemporary English word pronunciations" (Fennell 2001: 158).

Clearly, the problem of the raising of the final [e] to high [I] in the English laon pronunciation requires more research.

Endnotes

¹ For the sake of orthographic simplicity, two of the low vowels [a] and [**q**] used in *COD*'s transcriptions are here conflated and represented with the letter "a," and stress and vowel length notations are also ignored, since these phonetic details appear to be entirely irrelevant to the topic here being considered. Accordingly, the representation of the English pronunciation of loanword from Japanese *kamikaze* in the *Concise Oxford English Dictionary*, namely /,kamī'k**q**:zi/, is simplified to [kamīkazi].

² The *MW3* provides an "advanced search" engine, which I personally feel should be greeted with gratitude. This search engine is a useful research tool for those interested in the words of the English language. To its credit, the *MW3* permits advanced searches covering any of the following 13 segments of the lexical entry: (1) Entry word is..., (2) Defining text contains..., (3) Rhymes with..., (4) Forms a crossword of..., (5) Is a cryptogram of..., (6) Is a jumble of..., (7) Homophones are..., (8) Etymology includes ..., (9) Verbal illustration contains..., (10) Author quoted is..., (11) Functional label is..., (12) Synonymy paragraph contains ..., (13) Usage note contains.... Admittedly, some of these search parameters are dubious tools for scholarly research, but some are excellent additions to the tools available for lexical research. Unfortunately, I will present several criticisms of the way the *MW3*'s search engine actually operates in notes 3 & 4 below.

³ There are several reasons why the number of hits in the *MW3* search is different from the true number of relevant Japanese loans into English. In the search for Japanese loanwords into English, I used two search parameters. In the first, I asked for English words whose Main Entry ended in the letter "e". In the second, I asked for Etymologies which contained the word *Japanese*. I repeated the search numerous times and invariably received the same list of 43 hits, of which only 17 (= 40%) were true hits. The false hits mainly arose from "problems" in how the *MW3*'s search engine interpreted the two search parameters.

One source of false hits concerns the parameter asking for a main entry ending in the letter "e". A common problem was compounds such as *akamushi mite* in which the first element is a Japanese word but the second word – the one ending in "e" – is not. Other false hits of this kind are *hiba arborvitae, katsura tree, raku ware, ramanas*

rose, tanyosho pine, tara vine, tsutsugamuchi disease, bizen ware, and napa cabbage. A similar source of false hits is words (Japanese or otherwise) onto which a non-Japanese suffix which ends in "e" is attached; these are atjehnese, chosenese, javanese, katsuwonidae, macanese, menadonese, rotenone, and japoniserie. Yet other false hits occurred because the English loan ends in an "e" but the Japanese source does not. One example is the false hit on a word *bonze* ("a Buddhist monk") which ends in the letter "e" in the English loan but not in the Japanese source (= $bonz\bar{o}$), and a second is *soogee* (meaning "to wash down (as in the deck and paintwork of ship)") that ends in a double "ee" sequence, which in the peculiar orthographic conventions of English spelling is mostly used to indicate a high [i] vowel, which accurately reflects the final vowel of the Japanese words which the MW3 states might be the loan source, $s\bar{o}ji$. Another false hit was mokum (meaning "a Japanese alloy used in decorative work on gold and silver"). The hit apparently occurs because the native Japanese pronunciation *mokume* is given as an alternate form of the head word. The false hit on kudzu possibly occurs because kudzu vine is listed as a Variant; the false hit on soy probably arises from the alternate pronunciation $so\bar{e}$; the false hits on *soba* and *udon* perhaps appear because *soba noodle* and udon noodle are listed as Variants. A main conclusion one would have to draw is that the MW3's search engine interprets Main Entry quite loosely, including alternate word forms or pronunciations and Variants.

The second source of false hits concerned the search parameter asking for the word *Japanese* in the etymology. On the positive side, all 43 hits of the search for entry words ending with "e" AND having *Japanese* in the etymology worked quite nicely in that all 43 hits had the word *Japanese* somewhere in their etymology. Unavoidably, sometimes finding the term *Japanese* in the etymology produced false hits. This is because the *MW3* occasionally adds – useful but etymologically irrelevant – notes which contain the word *Japanese*; for instance, the false search hit *Javanese* is given the etymology "*Java* + *nese* (as in *Japanese*)". Here, *Japanese* is irrelevant to the word's etymology and merely provides a readily understandable analogy as to how the suffix –(*n*)*ese* functions. Of course, such false hits are not a "problem" of the *MW3*'s search engine; this sort of false hit is inevitable when employing a machine to do one's searches.

The false hit on *ginkgo* is, in contrast, a real problem. All of the "problems" previously discussed can be explained if we allow for hits outside the Main Entry in the Variant or alternative pronunciation subentries. The false hit on *ginkgo* is different.

The word *Japanese* is mentioned in the Etymology, but there is no word final "e" in the Main Entry, Pronunciation, or Function headings. The *MW3*'s entry is reproduced below:

Main Entry:	gink-go
Pronunciation:	ʻgiŋkō sometimes ʻji- or -ŋkgō or -ŋkyō
Function:	noun
Etymology:	New Latin, from Japanese ginkyo, from gin silver (from Chinese
	yin^2) + kyo apricot, from Chinese hsing ⁴

1. *capitalized*: a monotypic genus of broad-leaved gymnospermous trees (family Ginkgoaceae) that are native to eastern China, have apparently been preserved as temple trees being very rare in the wild, and are distinguished by fan-shaped deciduous leaves and yellow fruits resembling drupes....

On the one hand, the false hit on *ginkgo* could be an (astonishingly consistent!) failure of the Boolean search operator AND. On the other – and more likely – hand, it may well be a case of the search machine undesirably responding to one of the final-"e" words in the word's Etymology (namely *Japanese* and *Chinese*) or in the definition; these include *ginkgoaceae*, *native*, *have*, *temple*, *rare*, and *are*. In either case, the false hit is anomalous and suggests that there are inherent problems in the *MW3*'s search engine. Below in Note 4, we will encounter many more anomalous false hits when searching among Spanish loanwords.

⁴ In the search for Spanish loanwords into English, I once more used two search parameters. In the first, I asked for the Main Entry of English words ending in the letter "e". In the second, I asked for Etymologies which contained the word *Spanish*. I repeated the search numerous times and invariably received the same list of 534 hits, of which 264 were true hits. As with the Japanese database, the 270 false Spanish hits mainly arose from "problems" in how the search engine interpreted the two search parameters.

One group of false hits concerns the final "e" search parameter. The main source of false hits in the *Merriam-Webster* (= MW3) search was words with a "silent e" ending. Although there is no "silent e" in Spanish (Bruyne & Pountain 1995: 5) paralleling English words such as *hose* or *note*, it is not at all uncommon for English loans coming from Spanish or by way of Spanish to have a "silent e" at the end of the word in their

English pronunciation. Characteristic examples of "silent e" words coming from/through Spanish include *alcove, chocolate, garrote, hurricane*, and *mangrove*. Altogether, some 186 tokens (= 35% of the entire corpus) were eliminated from consideration because they don't, in actual English pronunciation, end with a vowel, despite their spelling. A second common sort of false hits concerns Spanish words which don't end in "e." These false hits were of various sorts. A group of 13 tokens were eliminated because the final "e" hit was not on a Spanish word, as in *montezuma's*

revenge or santa maria tree. A larger but similar group of 49 tokens were omitted because the Spanish relevant word did not end in "e" – although a final "e" did occur in (a) either the Main Entry as in *plaza de toros*, where the hit is on the preposition *de* and not a function word, or (b) in the Variant as in *spinage* for the main entry *spinach*, or (c) in some other part of the definition. This last group of false hits is often problematic and will be discussed in more detail at the end of this note. In regards to hits on a final "e" in the Variant, whenever the Variant was provided with a relevant pronunciation, it was substituted for the Main Entry, as a means of maximizing data. This amounted to an increase of 11 tokens: *chinele* ([ə]), *chile* ([i I]), *charque* ([i]), *alfione* ([i]), and *piperee* ([i]), for which the bracketed vowel indicates the pronunciation of the word's final vowel given in the *MW3*.

On a rather different note, a set of 14 hits was eliminated from consideration because they end in the wrong sort of "e" – namely as the orthographically accented "é", as in the Spanish exclamation olé (= bravo). Next, a set of 8 terms was also eliminated because they were repeats on the "same" hit, as was the case when *warm springs apache* was cut since the word *apache* had already been entered into the database. The analysis of these 22 tokens seems debatable to me but does not have any serious impact on the overall patterns of statistics on vowel raising.

More importantly, recall that, as explained in Note 3 above, in the Japanese database, there was one anomalous hit on the word ginkgo, which had no final "e" in any word of the Main Entry or Variant, and in which the search engine was – apparently – satisfied by a word ending in "e" in the word's Etymology or its definition proper. Such anomalous false hits were unfortunately common in the Spanish database, amounting to at least 46 tokens (= 9% of ALL hits). A "mildly" anomalous example would be

cannibal, which has the word *Spanish* in the Etymology but no final "e" in the Main Entry, Pronunciation, Function, or Inflected Form:

Main Entry:	can-ni-bal
Pronunciation:	kanəbəl
Function:	noun
Inflected Form:	-S
Usage:	often attributive
Etymology:	New Latin canibalis Carib, from Spanish cannibal, caribal,
	from 15 th century Arawakan <i>caniba</i> , <i>carib</i> (forms recorded by
	Columbus in Cuba and Haiti respectively), of Cariban origin;
	akin to Carib calina, calinago, galibi Caribs, literally, strong men,
	brave men

In this case, my guess is that the search engine is hitting on the final e" in the word *attributive* in the Usage note, although it could just as well be hitting on the final "e" such as *brave* in the Etymology.

A more "flagrantly" anomalous false hit can be exemplified with *mandarin*, which has no final "e" in the main entry and no word *Spanish* in the etymology:

Main Entry:	man-da-rin
Pronunciation:	mandərən
Function:	noun
Inflected Form:	-S
Etymology:	Portuguese mandarin, modification (influenced by mandar to
	command, from Latin mandare) of Malay měntěri, from Skt.
	mantrin counselor, from mantra counsel; akin to Sanskrit
	manyate he thinks - more at MANDATE, MIND
Main Entry:	1a. a public official under the Chinese Empire of any of nine
	superios grades that were filled by individuals from the ranks of
	lesser officeholders that passed examinations in Chinese literary
	classics

In this case, my guess is that the search engine is hitting on one of the final "e" words in the Etymology or Main Entry, such as *mandare* in the Etymology or *Chinese* in the Main Entry definition. I can find nothing that would explain the lack of the word Spanish anywhere in the entry.

In sum, the anomalous false hits on words like *ginkgo*, *cannibal*, and *mandarin* in the searches for Japanese and Spanish borrowings ending in "e" reveal unfortunate faults in the *MW3*'s search engine. These faults reduce the *MW3*'s advanced search engine usefulness and reliability for serious research.

⁵ Following is a list "true hits" in the MW3's search of for Spanish loans into English ending with a final "e". The final vowel pronunciation in IPA is given in square brackets after each word, including alternatives); surrounding parentheses indicate the vowel is optional. (a) final [u] barbecue [u], canoe [u]; (b) final [ə] alerce [ə], almude [ə], chinele [ə], cuba libre [ə], ombre [ə], peijibaye [ə], pellote [ə], tilde [ə]; (c) primary [i] abalone [i 1], acaxee [i], achiote [i], adobe [i], aguacate [i], aguardiente [i e], ahuatle [i], ahuehuete [i], alcade [i], alcaide [i], alcaide [i], alcornoque [i], alfione [i], almique [i], amate [i], ambiente [i], amole [i e], anniellidae [i], apache [i], bagre [i e ə], berrugate [i], bisagre [i e], botete [i], brazilette [i], brotulidae [i], bustamente furnace [i], cacaxte [i], caipotorade [i], caliche [i], camachile [i], camalote, [i], camalote, [i], camote [i], cana dulche [i], canaigre [i], canalete [i], carate [i], caribbee [i], caribe [i e], casabe [i], cascalote [i], cenote [i], chacate [i], chalchuite [i], chapote [i], charque [i], chayote [i], chicalote [i], chichipate [i], chichipe [i], chicle ([i]), chicote [i], chicozapote [i], chilacayote [i], chile [i I], chili con carne [i I], chilicothe [i], chilte [i], chinchayote [i], comanche [i], comandante [i e], compadre [i], conacaste [i], coyote ([i]), cuaguayote [i], cucujidae [i], curare [i], dengue [i e 1], diomate [i], don quixote [i e], filaree [i], frijole [i], galiongee [i], gamelote [i], grandee [i], guacamole [i], guaguanche [i], guanacaste [i], guasave [i], guayule [i], hicatee [i], hombre [i], huarache [i], huave [i], huisache [i], intendente [i], istle [i] izote [i], jinete [i], machete [i], maestro sastre [i], malinche [i], mammee [i], manatee [i], mecate [i], medrinaque [i], metate [i], mitote [i], mogote [i], mole [i], monte [i], mustee [i], paixtle [i], paloverde ([i]), penuche [i], petate [i], peyote [i], pinabete [i], pinacate bug [i], pinole [i], pipiree [i], pisone [i], pisote [i], pochote [i], pojoaque [i], presidente [i], puelche [i], quelite [i], rebote [i], rosinante [i], sabe [i I], sacahuiste [i], sangaree [i], sapote [i], sarape [i], seviche [i ɛ], soroche [i], tagasaste [i], tallote [i], talpatate [i], tamale [i 1], tarahumare [i], teniente [i], tepache [i], tepehuane [i], tepetate [i], teponaxtle [i], tierra caliente [i], timbe [i], tocalote [i], tolguache [i],

torrone [i], trapiche [i], tule [i I], urare [i], vigilante [i I], vizcache [i], warree [i], xarque [i ə], zacate [i] zamandoque [i], zapupe [i]; (d) primary [e] aimore [e], altiplanicie [e], anacahuite [e], araguane [e], arrastre₁[e], arrastre₂ [e], atole [e], ayacahuite [e], baile [e], balaustre [e], balche [e], batamote [e], bosque [e], bucare [e i], caique [e i ə], calique [e ai ə], cante hondo [e], chipote [e i], chucunaque [e], clave [e], coche [e], cohitre [e], coigue [e], conepate [e], copalche [e], copalcocote [e], copihue [e], corte [e], cotoname [e], cube [e], dagame [e], dama de noche [e], derriengue [e], duende [e], dulce [e], empeine [e], escabeche [e], espave [e], estoque [e], eudeve [e], fique [e], galafate [e], guanche [e], huarpe [e], infante [e], jacate [e], janambre [e], jarabe [e], jefe [e], jicaque [e], jique [e], jocote [e], lingue [e], linoloe [e], litre [e], maipure [e], mangue [e], martinete [e], matte [e], mayance [e], merengue [e], mitimae [e], mixe [e], molave [e], molle [e], moriche [e], nance [e], nieve penitente [e], norte [e], nuche fly [e], ocote [e], olive [e], otate [e], otuke [e], padre [e], paiche [e i], pase [e], paso doble [e], patache [e], patashte [e], paurague [e], penitente [e i], pinche [e], pinque [e], pique [e], principe [e], pulque [e i], quiche [e], quite [e], recorte [e], remate [e], rengue [e], roble [e], sainete [e], sucre [e], suerte [e], talaje [e], tiple [e], tulure [e], ule [e], volante [e], yaxche [e], ziricote [e].

⁶ The phrase "the Great Vowel Shift 'proper'" from Roger Lass (McMahon 2006), who authors the article 'Restructuring Renaissance English' in the *Oxford history of English*. The Great Vowel Shift is an extremely complicated matter, and is the subject of scholarly debate, a debate which is ably summarized in McMahon (2006: esp. 154-76) and also by Lass himself (1999: esp. 72-116) writing in *The Cambridge history of the English language*. While everything one might state about the GVS is presently controversial, there were an early set of changes that many scholars accept as having occurred at the beginning of the Early Modern English period. To avoid controversy as much as possible and to restrict discussion to only relevant sound changes, I here confine the term "The Great Vowel Shift 'proper'" to four vowel changes: the changes of mid [e:] to [i:] and of mid [o:] to high [u:] and the changes of high [i:] to [ai] and of high [u:] to [au].

⁷ As for final "e" Spanish loans entering the English language in the time period ending at 1607, the *OED* gives these 12 words, arranged by date of entry: *canoe* [u] (1555),

infante [e] (1555), *manatee* [i] (1555), *sapote* [i] (1560), *mammee* [i] (1572), *padre* [e] (1584), *patache* [e] (1589), *grandee* [i] (1589), *machete* [i] (1598), *guanche* [e] (1599), *molle* [e] (1604), and *don Quixote* [i e] (1607).

⁸ As for final "e" Spanish loans entering the English language in the 17th and 18th centuries, the *OED* lists these 22 words, arranged by date of entry: *alcaide* [i] (1615), *caique* [e I ə] (1625), *coyote* [i Ø] (1628), *trapiche* [i] (1648), *ombre* [ə] (1660-61), *chile* [i I] (1662), *warree* [i] (1684), *pulque* [e i] (1693), *barbeque* [u] (1697), *hicatee* [i] (1697), *mustee* [i] (1699), *medrinaque* [i] (1704), *atole* [e] (1716), *sangaree* [i] (1736), *apache* [i] (1745), *pinche* [e] (1745), *rosinante* [i] (1745), *pique* [e] (1748), *adobe* [i] (1748), *curare* [i] (1777), *volante* [e] (1791), *achiote* [i] (1796), and *teniente* [i] (1798).

⁹ As for final "e" Spanish loans entering the English language in the 19th and 20th centuries, the OED lists these 61 words, arranged by date of entry: comanche [i] (1806), galiongee [i] (1813), aguardiente [i e] (1818). alcornoque [i] (1823), monte [i] (1824), ahuehuete [i] (1828), dengue [i e 1] (1828), amole [i e] (1831), compadre [i] (1834), *metate* [i] (1834), *jarabe* [e] (1834), *sarape* [i] (1834), *tule* [i 1] (1837), *suerte* [e] (1838), cenote [i] (1841), camote [i] (1842), pinole [i] (1842), chalchuite [i] (1843), dulce [e] (1844), alerce [ə] (1845), hombre [i e] (1846), ule [e] (1846), zacate [i] (1848), abalone [i I] (1850), sabe [i I] (1850), paloverde [i] (1854), vigilante [i I] (1856), ocote [e] (1858), caliche [i] (1858), peyote [i] (1859), tilde [ə] (1864), roble [e] (1864), moriche [e] (1866), copalche [e] (1866), caribe [i e] (1868), penuche [i] (1872), m*ecate [i] (1877), soroche [i] (1878), canaigre [i] (1878), camalote [i] (1881), istle [i] (1883), sucre [e] (1886), huarache [i] (1887), chicle [i] (1889), aguacate [i] (1897), berrugate [i] (1898), cuba *libre* [ə] (1898), *chicote* [i] (1903), *guayule* [i] (1906), *guacamole* [i] (1920), *cube* [e] (1924), recorte [e] (1925), quite [e] (1926), tepache [i] (1926), ambiente [i] (1926), clave [e] (1928), cante hondo [e] (1932), mole [i] (1932), meringue [e] (1936), tiple [e] (1942), and *paiche* [e i] (1961).

¹⁰ Following is a list "true hits" in the *MW3*'s search of for Japanese loans into English ending with a final "o". (a) primary [o]: aikido [o], bento box [o], budo [o], bushido [o], cho [o], daimyo [o], do [o], dojo [o], genro [o], ginkgo [o], go [o], gobo [o], gyokuro [o],

honcho [o], icho [o], jodo [o], judo [o], kago [o], kakemono [o ə], kendo [o], koro [o], koto [o], kozo [o], makimono [o ə], mikado [o], miso [o], mondo [o], no [o], norito [o], pachinko [o], shinto [o], sugamo [o], sumo [o], tamo [o], tanyosho pine [o], tempo [o], tenno [o], toyo [o], tsubo [o], udo [o], ukiyo-e [o], yamato [o], zendo [o]; (b) primary [ə]: kimono [ə o], yamato-e [ə o],

¹¹ Following is a list "true hits" in the *MW3*'s search of for Japanese loans into English ending with a final "i". (a) primary [i]: aburagiri [i], adzuki beans [i], akamushi mite [i], akebi [i], akeki [i], amanori [i], awabi [i], bon-seki [i], chorogi [i], dashi [i], enoki [i], fuji [i], funori [i], gi [i], goumi [i], hagi [i], haori [i], hara-kiri [i I], hibachi [i], hinoki [i], kabuki [i], kaiseki [i], kaki [i], kami [i], kana-majiri [i], kanji [i], ki [i], kiaki [i], kiri [i], koji [i], machi [i], mamuchi [i], marumi kumquat [i], meiji [i], nori [i], obi [i], odori [i], origami [i], randori [i], reiki [i], ri [i], romaji [i], rumaki [i], sakaki [i], sashimi [i], satori [i], shakuhachi [i], shibuichi [i], shikii [i], shirakashi [i], shogi [i], shoji [i], sugi [i], sukiyaki [i], sumi [i],sumi-e [i], surimi [i], sushi [i], tamari [i], tatami [i], teppanyaki [i], teriyaki [i], torii [i], tsunami [i], zori [i]; (b) [ai]: bai-u [i], banzai [ai], bonsai [ai], habutai [ai], haikai [ai], mai [ai], samurai [ai], shintai [ai], soka gakkai [ai], tai [ai], tendai [ai], yamamai [ai]; (c) [oi]: koi [i]

¹² Following is a list "true hits" in the *MW3*'s search of for Japanese loans into English ending with a final "u". (a) only [u]: akamatsu [u], ansu [u], ayu [u], bai-u [u], bu [u], bugaku [u], bunraku [u], chanoyu [u], fugu [u], gagaku [u], haiku [u], hokku [u], jujitsu [u], katsu [u], kiku [u], koku [u], kombu [u], kudzu [u], kwazoku [u], maru [u], matsu [u], nembutsu [u], ninjutsu [u], nogaku [u], raku ware [u], ritsu [u], ryobu [u], senryu [u], seppuku [u], shabu-shabu [u], shaku [u], shiatsu [u], shiba inu [u], shizoku [u], shoyu [u], sodoku [u], tofu [u], zaibatsu [u] (b) nunchaku [Ø u]

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