

UC Berkeley

Proceedings of the Annual Meeting of the Berkeley Linguistics Society

Title

Perception of Illegal Contrasts: Japanese Adaptations of Korean Coda Obstruents

Permalink

<https://escholarship.org/uc/item/6x34v499>

Journal

Proceedings of the Annual Meeting of the Berkeley Linguistics Society, 36(36)

ISSN

2377-1666

Author

Whang, James D. Y.

Publication Date

2016

Peer reviewed

PROCEEDINGS OF THE THIRTY SIXTH ANNUAL MEETING OF THE
BERKELEY LINGUISTICS SOCIETY

February 6-7, 2010

General Session

Special Session

Language Isolates and Orphans

Parasession

Writing Systems and Orthography

Editors

Nicholas Rolle
Jeremy Steffman
John Sylak-Glassman

Berkeley Linguistics Society
Berkeley, CA, USA

Berkeley Linguistics Society
University of California, Berkeley
Department of Linguistics
1203 Dwinelle Hall
Berkeley, CA 94720-2650
USA

All papers copyright © 2016 by the Berkeley Linguistics Society, Inc.

All rights reserved.

ISSN: 0363-2946

LCCN: 76-640143

Contents

Acknowledgments	v
Foreword	vii
<i>Basque Genitive Case and Multiple Checking</i> Xabier Artiagoitia	1
<i>Language Isolates and Their History, or, What's Weird, Anyway?</i> Lyle Campbell	16
<i>Putting and Taking Events in Mandarin Chinese</i> Jidong Chen	32
<i>Orthography Shapes Semantic and Phonological Activation in Reading</i> Hui-Wen Cheng and Catherine L. Caldwell-Harris	46
<i>Writing in the World and Linguistics</i> Peter T. Daniels	61
<i>When is Orthography Not Just Orthography? The Case of the Novgorod Birchbark Letters</i> Andrew Dombrowski	91
<i>Gesture-to-Speech Mismatch in the Construction of Problem Solving Insight</i> J.T.E. Elms	101
<i>Semantically-Oriented Vowel Reduction in an Amazonian Language</i> Caleb Everett	116
<i>Universals in the Visual-Kinesthetic Modality: Politeness Marking Features in Japanese Sign Language (JSL)</i> Johnny George	129
<i>Equative and Predicational Copulas in Thai</i> Nancy Hedberg and David Potter	144

<i>On the Reflexive-Antipassive Polysemy: Typological Convergence from Unrelated Languages</i> Katarzyna Janic	158
<i>Position and Height Asymmetries in Hiatus Resolution: A Case Study of Korean VV Sequences</i> Hijo Kang	174
<i>Negative Concord in Western Armenian</i> Hrayr Khanjian	188
<i>Emergent Hidden Grammar: Stochastic Patterning in Korean Accentuation of Novel Words</i> Hyun-Ju Kim	203
<i>Evidentiality in Korean Conditional Constructions</i> Iksoo Kwon	218
<i>The Source-Goal Asymmetry in SLA</i> Wojciech Lewandowski	233
<i>Subject Relatives and Expletives in Early New High German</i> Caitlin Light	247
<i>An Embodied Account of Argument Structure Development</i> Josita Maouene, Nitya Sethuraman, Mounir Maouene, and Linda B. Smith	261
<i>A Gujarati Origin for Scripts of Sumatra, Sulawesi and the Philippines</i> Christopher Miller	276
<i>A Quantitative Analysis of Nominative/Genitive Alternation in Japanese</i> Satoshi Nambu	292
<i>A Sibling Precedence Approach to the Linearization of Multiple Dominance Structures</i> David Potter	307
<i>Surface Faithfulness Phenomena and the Consonantal Root in the Modern Hebrew Verb System</i> Tom Recht	322
<i>Partial Wh-Movement and Wh-Copying in Dutch: Evidence for an Indirect Dependency Approach</i> Ankelien Schippers	338
<i>Computational Cognitive Morphosemantics: Modeling Morphological Compositionality in Hebrew Verbs with Embodied Construction Grammar</i> Nathan Schneider	353

<i>Some Hypotheses About Possible Isolates within the Atlantic Branch of the Niger-Congo Phylum</i> Guillaume Segerer	368
<i>From Relativization to Nominalization and More: Evidence from the History of Okinawan</i> Reijirou Shibasaki	382
<i>A Cross-linguistic Study of Sound Symbolism: The Images of Size</i> Kazuko Shinohara and Shigeto Kawahara	396
<i>Testing for Frequency and Structural Effects in an English Stress Shift</i> Morgan Sonderegger	411
<i>Neighborhood Density in Phonological Alternations</i> Sverre Stausland Johnsen	426
<i>Person Indexicals in Uyghur Indexical Shifting</i> Yasutada Sudo	441
<i>Metathesis and Reanalysis in Ket</i> Edward Vajda	457
<i>An Empirical Investigation of Typicality and Uniqueness Effects on Article Choice in Attributive-Possession NPs</i> Gregory Ward, Christopher Ahern, and Tom Hayden	472
<i>Perception of Illegal Contrasts: Japanese Adaptations of Korean Coda Obstruents</i> James D. Y. Whang	488
<i>Diglossia versus Register: Discursive Classifications of Two Sinhala Varieties</i> Cala Zubair	499

Acknowledgments

The editors of the 36th Annual Meeting of the Berkeley Linguistics Society are grateful to conference participants, our volunteers, session chairs, and the faculty, all of whom made the event an intellectually stimulating and enriching event. We would like to extend our sincere gratitude to the contributors of this volume for their professionalism, responsiveness, attention to detail, and patience in the editorial process, without which this would not have been possible.

Within our department, special thanks go to Paula Floro and Belén Flores for all their support with BLS 36 and this annual conference in general. The editors wish to also thank the executive committee of BLS 36 who organized and ran the conference, and Zachary O'Hagan for expertise in the final compilation using LaTeX.

Finally, we would like to thank the following organizations for their generous financial support:

Department of Linguistics
Graduate Assembly
Social Sciences Division
Student Opportunity Fund
International Computer Science Institute (ICSI)

Foreword

This monograph contains 34 of the 51 talks given at the 36th Annual Meeting of the Berkeley Linguistics Society (BLS 36), held in Berkeley, California, February 6-7, 2010. The conference included a General Session, one Special Session entitled *Language Isolates and Orphans*, and one Parasession entitled *Writing Systems and Orthography*. It was planned and run by the second-year graduate students in the Department of Linguistics at the University of California, Berkeley. The members of this executive committee were Jessica Cleary-Kemp, Clara Cohen, Stephanie Farmer, Melinda Fricke, Laura Kassner, and John Sylak-Glassman.

The papers contained herein were edited principally for style by the three editors Nicholas Rolle, Jeremy Steffman, and John Sylak-Glassman, and then given back to contributors to make changes. Nicholas Rolle took upon primary editorial responsibilities, Jeremy Steffman was an undergraduate editorial assistant, and John Sylak-Glassman helped to edit papers. Upon the final resubmission, the final versions of these papers were incorporated by Zachary O'Hagan and Nicholas Rolle into the monograph found here. Our goal has been the speedy publication of these proceedings, and as such, certain aspects – e.g., the complete unification of formatting – have been sacrificed. It is our belief that this does not detract from the final publication in any way.

Nicholas Rolle
Jeremy Steffman
John Sylak-Glassman

January 2016

Perception of Illegal Contrasts: Japanese Adaptations of Korean Coda Obstruents¹

JAMES D. Y. WHANG
New York University

1 Introduction

A series of studies by Dupoux and colleagues (Dupoux et al. (1999), Peperkamp & Dupoux (2003), Vendelin & Peperkamp (2004), Peperkamp (2005)) have proposed that loanword adaptation, which refers to the transformation words go through when they are borrowed from a source language (L2) to a borrowing language (L1), happens entirely during perception. They claim that when an L1 speaker is given an acoustic signal that contains segments that are illegal in his native language, his native phonotactics distort how this signal is perceived, automatically mapping it to the closest well-formed sound, and that this process, called perceptual assimilation, often makes it extremely difficult to perceive nonnative sounds accurately. This paper provides evidence partially contrary to their claims, from adaptations of Korean final coda obstruents into Japanese, showing that Japanese speakers are able to perceive some phonotactically illegal contrasts.

2 Korean Loanwords in Japanese

2.1 Overview

There has been an influx of Korean loans into Japanese since the turn of the 21st century, following a cultural trend in Japan called “the Korean Wave,” where all things Korean gained tremendous popularity. The majority of Korean loanwords in Japanese are in the lexical category of cuisine, and it can be assumed that these

¹ Special thanks to Kie Zuraw for discussion and continued support. Also thanks to Kaori Furukawa for sharing her research results and to the audience members of BLS 36 for comments and feedback.

loans are based more on auditory perception compared to western loans, as knowledge of Korean orthography is still relatively low in Japan. Evidence of this can be seen in numerous Japanese web forums where the users discuss the “correct” way to spell and pronounce Korean loans, many bringing up the issue of their own perception (website 1). Korean loans into Japanese, therefore, provide a rare look into the actual process of how words are borrowed with minimal orthographic interference.

2.2 Data

Japanese word structure is primarily CVCV, with only one obstruent coda /Q/, written as つ in hiragana or ツ in katakana, which normally represents the first half of a geminate (Ito & Mester 1995). Although it is not conventional orthographic practice to have a word end in /Q/, the characters representing it are actually used quite liberally in the word-final position in comic books and the like to indicate an abrupt pause in utterance, which surfaces in speech as a glottal stop.

(1)	このっ	[konoʔ]	‘why, you...!’ (literally, <i>this</i>)
	くっ	[kuʔ]	‘a grunt’
	何ッ	[naniʔ]	‘what?! (emphatic)’

The glottal stop, however, is optional and is not phonemic in its usage.² By contrast, Korean allows [pʰ, tʰ, kʰ] in coda position (Sohn 1999:165), and as will be discussed later in this section, there are cases in which the three Korean final coda obstruents are mapped to the optional glottal stop in Japanese.

Data were obtained from Japanese websites, including personal blogs and professional sites dedicated to Korean culture, katakana transliterations of Korean pop song lyrics in Japanese karaoke machines, and two native Japanese speaker-consultants from Chiba (Kanto region) and Osaka (Kansai region). According to Japanese orthographic representations, Korean loanwords in Japanese behave similarly to the more well-documented western loans, showing deletion and epenthesis to resolve illegal codas.

(2)	Deletion:		
	[pibimpapʰ]	>	[bibimbaØ] ‘rice dish’
	[kukpapʰ]	>	[kuppaØ] ‘rice in soup’

² There are native Japanese words that end in [ʔ] (ちえっ [tʃeʔ] ‘curse word’), but they are peripheral (Ito & Mester 1995) and the necessity of the final つ seems to depend on the context.

Japanese Adaptations of Korean Coda Obstruents

- (3) Epenthesis:
- | | | | |
|--|---|----------------------|----------------------------|
| [h ^w edɔppap ^ɾ] | > | [ɸetoppap <u>u</u>] | ‘rice mixed with raw fish’ |
| [k ^ʰ ennip ^ɾ] | > | [kennip <u>u</u>] | ‘sesame leaf’ |
| [p ^h atʃuk ^ɾ] | > | [patʃuk <u>u</u>] | ‘red bean porridge’ |
| [t ^ʰ ɔk ^ɾ] | > | [tokk <u>u</u>] | ‘rice cake’ |

Currently, my data show that epenthesis is the most productive repair strategy for Korean coda obstruents, but as my analysis will show in the next section, it is unclear whether this epenthetic vowel is actually the result of acoustic perception or a misrepresentation due to limitations of Japanese orthography in expressing coda segments. Further research and experiment are required before any claims can be made, and thus epenthesis will not be discussed in too much detail in this paper. A new orthographic convention was found in the transliteration of Korean pop-song lyrics in Japanese karaoke machines, which also show epenthesis, but the kana characters that represent codas are written in subscript, presumably to show that the epenthesized vowel is “weak.”

- (4)
- | | | | | |
|-------------------------|---|-------------------------|------------------|---------|
| [ap ^ɾ] | > | [ap _u] | ア _ッ | ‘front’ |
| [maɕimək ^ɾ] | > | [maɕimək _u] | マジマ _ッ | ‘last’ |

There are no instances of epenthesis after [t^ɾ]. Instead, Japanese consistently resolves Korean final coda obstruent [t^ɾ] by means of debuccalization to a glottal stop, a repair strategy that can be seen with [p^ɾ, k^ɾ] as well.

- (5)
- | | | | |
|-------------------------------------|---|----------|---------------------------|
| [kimpap ^ɾ] | > | [kimpaʔ] | ‘Korean style sushi roll’ |
| [tigit ^ɾ] | > | [tiguʔ] | ‘Hangul letter t’ |
| [hot ^ʰ ɔk ^ɾ] | > | [hottoʔ] | ‘grilled rice cake’ |

The repair strategies above often apply to the same words, resulting in multiple forms of the same words.

- (6)
- | | | | |
|--|---|-------------------------|------------------------------|
| [pibimpap ^ɾ] | > | [bibimbaØ] | ‘rice mixed with vegetables’ |
| | | [pibimpap <u>u</u>] | |
| | | [pibimpaʔ] | |
| [ʃejukdɔppap ^ɾ] | > | [ʃejkutoppap <u>u</u>] | ‘rice mixed with pork’ |
| | | [ʃejjuttoppaʔ] | |
| [pindet ^ʰ ɔk ^ɾ] | > | [pindetok <u>u</u>] | ‘flat rice cake’ |
| | | [pindetʰoʔ] | |

2.3 Analysis

Because all loanword adaptation occurs at the phonetic level during perception according to Peperkamp & Dupoux (2003), there is no mapping from source pronunciation to nativized pronunciation that is regulated by L1 phonology, meaning the source is not treated as the underlying representation (UR). Rather, L1 phonology is involved in dictating how the acoustic input from L2 will be perceived. It is not surprising then that Japanese repairs Korean coda obstruents through deletion since Korean coda obstruents are strictly unreleased and thus acoustically similar to zero. On the other hand, what is surprising is that the two examples in (2), relisted below, were the only words that showed deletion.

- | | | | | |
|-----|--------------------------|---|------------|----------------|
| (7) | [pibimpap ^ㄱ] | > | [bibimbaØ] | ‘rice dish’ |
| | [kukpap ^ㄱ] | > | [kuppaØ] | ‘rice in soup’ |

All other loans show epenthesis or debuccalization, and while vowel epenthesis is by far the most productive repair strategy in Japanese for western loans, it is rather unexpected in the case of the unreleased Korean coda obstruents since epenthesis is usually an attempt to mimic release (Jun 2002). To confirm whether perceptual epenthesis actually occurs, I conducted a pilot perceptual experiment, where I recited five Korean words out loud twice and gave my two speaker consultants the task of repeating after me, then transcribing the words into katakana by hand. The results were as shown in (8) below. Romanized forms of the katakana transcriptions have been provided in parentheses.

- | (8) | Stimulus | > | Kanto
Speaker | Kansai
Speaker | Definition |
|-----|-----------------------------------|---|--|----------------------------------|----------------|
| | [t ^h ap ^ㄱ] | > | [taʔ], [tap ^ㄱ]
タツ, タッ
(taQ, tap _u) | [taʔ]
タ
(taØ) | ‘tower’ |
| | [k’onnip ^ㄱ] | > | [konnip ^ㄱ]
コンニッ
(konnip _u) | [konniʔ]
コンニ
(konniØ) | ‘flower petal’ |
| | [mat ^ㄱ] | > | [maʔ]
マッ
(maQ) | [maʔ]
マ
(maØ) | ‘flavor’ |
| | [mok ^ㄱ] | > | [moʔ]
モッ
(moQ) | [moʔ]
モ
(moØ) | ‘neck’ |
| | [sutkarak ^ㄱ] | > | [sukkaraʔ]
スッカラッ
(sukkaraQ) | [sukkaraʔ]
スッカラ
(sukkaraØ) | ‘spoon’ |

Japanese Adaptations of Korean Coda Obstruents

While the results above reveal that perceptual epenthesis does not occur after Korean final coda obstruents, they also reveal that the relationship between Japanese speech and orthography is somewhat unreliable when it comes to coda obstruents. First, notice that both consultants' speech show debuccalization for all of the words except the second, but the Kansai speaker's transcription shows deletion rather than debuccalization. I was surprised at the consistent discrepancy between the Kansai dialect speaker's speech and transcription and inquired her regarding the matter, but she stated that her transcriptions accurately represented what she heard, meaning the final glottal stop in her speech is non-contrastive. Second, the Kanto dialect speaker's transcription uses subscript kana to represent the coda [p̚] for the first two examples, showing that it represents an unreleased lip closure. However, when I asked the Kansai speaker about the subscript kana, she claimed that she would read it like a full-sized kana and that the smaller size of the kana is meaningful only in that it lets her know that the sound is "weaker" in Korean. So it seems that while subscript kana is an attempt to mimic the unreleased Korean coda obstruents, there still is no consensus on what the correct way to read it is. Given the experimental results above, I will assume that epenthetic vowels in Korean coda adaptations are not the result of a misperceived extra vowel, and thus will focus on debuccalization. In fact, the epenthesized forms are usually found in websites run by Korean individuals or companies, who may be basing their transcriptions on what they expect Japanese speakers to do.

Debuccalization, a process in which the supralaryngeal articulation of a consonant is lost, satisfies the Coda-Condition constraint in Japanese, which disallows place in coda (Kager 1999:131), by neutralizing the three Korean coda obstruents [p̚, t̚, k̚] to glottal stop.

(9)	[pi̥p̚]	>	[piuʔ]	‘Hangul letter p (lax)’
	[oŋ̚i̥noŋ̚oŋ̚t̚]	>	[oŋ̚i̥noŋ̚oŋ̚ʔ]	‘marinated raw squid’
	[ŋ̚uk̚]	>	[ŋ̚uʔ]	‘porridge’

This process of debuccalization of Korean coda obstruents in Japanese shows that native Japanese speakers are able to perceive the presence of a final stop. A similar case of debuccalization can be seen in Bahasa Indonesia loans into Selayarese (Broselow 2002). However, unlike in Selayarese, word-final glottal stop is not a phoneme but an optional variant of \emptyset in Japanese (Bloch 1950), and thus, this neutralization of [p̚, t̚, k̚] to glottal stop, while it preserves the restriction against place contrast in coda, violates another restriction against a contrast between final glottal stop and final zero.

Peperkamp and Dupoux probably would not use Optimality Theory to support their arguments, but it is useful in illustrating the mechanism behind how things get perceived. Therefore, provided below are the constraints and their ranking from Furukawa (2009), which reflect how Korean coda obstruents are perceived

in Japanese. I would like to clarify that the tableaux below do not represent the mapping from a lexical entry to a surface form, but rather a mapping from acoustic input to a perceptual representation based on Peperkamp & Dupoux's (2003) argument that all loanword adaptation occurs during perception.

(10) Constraints

- a. CODACOND [*Place] σ . A coda may not have its own place feature (though it may share place features with a following onset)
- b. IDENT-IO [Place]. Correspondent segments in input and output have identical values for their place of articulation
- c. IDENT-IO [Release]. Correspondent segments in input and output have identical values for their release characteristics (i.e., whether they are audibly released or not)
- d. MAX-IO. No deletion.
- e. DEP-IO. No epenthesis.

(11) Korean input: pibimpap¹ > bibimba \emptyset or pibimpa?
'rice mixed with vegetables'

		Ranking Variable				
Source Pronunciation	pap ¹	CODACOND [*Place] σ	IDENT-IO [Release]	MAX-IO	IDENT-IO [Place]	DEP-IO
Perception Candidates	a. papu		*!			*
	b. pa			*		
	c. pa?				*	
	d. pap ¹	*!				

Compare (11) above to (12) below.

Japanese Adaptations of Korean Coda Obstruents

(12) English input: paip̃ > paipu ‘pipe’ ([p̃] stands for release)

		Ranking Variable				
Source Pronunciation	paip̃	CODACOND *Place[σ]	IDENT-IO [Release]	MAX-IO	IDENT-IO [Place]	DEP-IO
	Perception Candidates	a. paipu				
b. pai				*!		
c. paiʔ			*!		*	
d. paipʔ		*!	*			
e. paip̃		*!				

Furukawa’s analysis shows that epenthesis is dispreferred for Korean loans because there is no release, which is not surprising since epenthesis is usually an attempt to preserve a misperceived release (Jun 2002). However because place contrast in codas is disallowed, native Japanese speakers are left to choose either deleting the consonant completely or deleting just the place features. A jagged line was used between MAX-IO and IDENT-IO [Place] because the ranking of the two seems to be variable depending on the speaker.

3 Discussion

Tableau (11) illustrates the idea that given an acoustic signal containing unreleased coda obstruents, it is equally possible for native Japanese speakers to perceive the phonotactically illegal segment as either non-existent or as a placeless coda. However, the distribution of deletion vs. debuccalization is extremely skewed, with only the two items in (2), listed again below, showing deletion.

(13) [pibimpapʔ] > [bibimbaØ] ‘rice dish’
 [kukpapʔ] > [kuppapʔ] ‘rice in soup’

A possible explanation for this is that the two items above have been the all-time-favorite Korean dishes in Japan since before “the Korean Wave,” when the knowledge of Korean phonology in Japan would have been extremely low. Early English loans into Japanese in the 19th and early 20th centuries had also undergone final coda deletion when borrowed under similar circumstances (Smith 2006).

(14) English		19th-20th Century Adaptation
pocket	>	[pokkeØ]
lemonade	>	[ramuneØ]
jitterbug	>	[ʧirubaØ]

Since Japanese optionally inserts a glottal stop utterance-finally, it is quite possible that the final [pʷ] in the two examples in (13) completely deleted because it was perceived as a pause in utterance. All other loans were borrowed much more recently following the rise in popularity of all things Korean, and therefore, the borrowers would have had a higher level of proficiency in Korean and known that Korean allows coda obstruents word-finally. Of course, it is possible that the earlier loans in (13) were perceived with a glottal stop, but the fact that they did not explicitly note the presence of a coda segment orthographically suggests that the glottal stop was treated as non-contrastive. The more recent loans, however, do explicitly note the coda segments, meaning they are now treated as contrastive even though they are not contrastive in the native phonotactics. Evidence of this is the presence of pairs in which the final glottal stop becomes contrastive. In (15), /tʷɔk/ is repaired by epenthesis, creating a minimal pair (the pitch-accents were identical for the Kansai speaker, though they differed for the Kanto speaker) with debuccalized /tʷɔkkuk/:

(15) [tʷɔkʷ]	>	[tokku]	‘rice cake’
[tʷɔkkukʷ]	>	[tokkuʷ]	‘rice cake soup’

The experience of my Kanto dialect speaker-consultant also seems to confirm a correlation between L2 proficiency and perceptual sensitivity toward phonotactically illegal segments, as she has been taking Korean language classes for a year and performed better than the Kansai dialect speaker in perceiving and noting the presence of the Korean coda obstruent. She claims that taking the classes has helped her to hear these segments she was once “deaf” to, although she admits that it is still difficult for her to distinguish among the three obstruents.

It is somewhat surprising that [pʷ] is neutralized despite its visually apparent labial feature. Both of my speaker consultants neutralized [pʷ] to a glottal stop, although the Kanto dialect speaker corrected herself the second time.

Japanese Adaptations of Korean Coda Obstruents

(16)	Stimulus		Kanto Speaker	Kansai Speaker	Definition
	[t ^h ap ^ɾ]	>	[taʔ], [tap ^ɾ] タツ, タッ (ta ^Q , tap ^u)	[taʔ] タ (ta∅)	‘tower’
	[k’onnip ^ɾ]	>	[konnip ^ɾ] コンニッ (konnip ^u)	[konniʔ] コンニ (konni∅)	‘flower petal’

This may be due to the fact that lip closure occurs freely in the coda position in emphatic/firm speech in Japanese (/hai/ > [haip^ɾ] ‘yes’, /ikimaseN/ > [ikimasem] ‘not going’), and thus is not treated as contrastive.

Generally speaking, however, debuccalization of [p^ɾ, t^ɾ, k^ɾ] seems quite similar to how final /n/ of English and French loanwords are dealt with in Japanese. English /n/ is mapped to the moraic nasal consonant of Japanese, which assimilates in place to a following consonant, or, if word-final, surfaces as a uvular nasal or just a nasalization of the preceding vowel. French /n/, on the other hand, is unnecessarily repaired as a geminate nasal followed by an epenthetic vowel (Vendelin & Peperkamp 2004).

(17) From Vendelin & Peperkamp 2004

[skri:n]	>	[sukuri:n]	‘screen’	English
[dwan]	>	[duannu]	‘customs’	French

Vendelin and Peperkamp attribute this difference in adaptation strategies to the differences in length and intensity of final [n] in both languages and their release. Phonetically, /N/ in Japanese is placeless in the same way glottal stop is, and if it is the case that English final /n/ is being mapped to the placeless /N/ because it is perceived to be weaker than French final /n/, then this could also mean that Korean coda obstruents are resolved through debuccalization rather than through epenthesis because Japanese speakers perceive the strictly unreleased coda obstruents of Korean to be weaker than the variably released English final coda obstruents.

4 Conclusion

Dupoux and his colleagues argue that all loanword adaptations occur during perception and that any structure that is phonotactically illegal in L1 is mapped to the closest legal native counterpart. However, this paper has shown an intermediate case with Korean loanwords in Japanese, where one illegal contrast fails to get perceived (place in the coda) while another illegal contrast that results from the first failure does get perceived (presence vs. absence of final stop, realized as

glottal stop vs. zero), the latter of which was not perceived with older loans, as the orthography suggests. This development of sensitivity towards illegal contrasts can be linked to L2 proficiency, and my pilot perceptual experiment seems to support this. However, there may be other factors involved in my speaker-consultants' different levels of sensitivity towards Korean final coda obstruents, such as high vowel devoicing between voiceless segments, which is observed in the Kanto dialect but not in the Kansai dialect. Another possible explanation for the sensitivity toward illegal contrasts is that there is more direct exposure to Korean acoustic sources through various media outlets such as pop music, television shows, and movies; debuccalization may be evidence that the optional utterance-final glottal stop is becoming phonemic through this increased exposure.

The greatest shortcoming of this research, even with my two speaker consultants, is that my analysis is based heavily on the orthographic representations of Korean loanwords in Japanese, which is very limited in its ability to express coda segments, although there are new orthographic conventions that try to remedy this. A larger-scale perceptual experiment than what was presented in (8) should provide clearer insight into how Korean final coda obstruents are perceived in Japanese. Besides looking just at how native Japanese speakers from different dialectal regions with different levels of exposure to Korean perceive acoustic stimuli, an interesting experiment could be to test whether their perception changes based on whether they are told that the acoustic stimuli are Korean, English, or an artificial language.

This research also brought up some new questions, such as the environments in which glottal stop and lip closure surface. They both occur utterance finally, but it is unclear whether they are simply two different surface forms of /Q/ or they are to be treated separately. Thus far, it seems likely that glottal stop is the default and lip closure an allophone, but further research is required.

References

- Bloch, Bernard. 1950. Studies in Colloquial Japanese IV Phonemics. *Language* 26: 86-125.
- Broselow, Ellen. 1999. Stress, Epenthesis, and Segment Transformation in Selayarese Loans. In S. Chang, L. Liaw, and J. Ruppenhofer, eds., *Proceedings of the 25th Annual Meeting of the Berkeley Linguistic Society*, 311-325.
- Dupoux, E., K. Kakehi, Y. Hirose, C. Pallier, and J. Mehler. 1999. Epenthetic Vowels in Japanese: A Perceptual Illusion? *Journal of Experimental Psychology: Human Perception and Performance* 25: 1568-1578.

Japanese Adaptations of Korean Coda Obstruents

- Furukawa, Kaori. 2009. Perceptual Similarity in Loanword Adaptation Between Japanese and Korean. MA thesis, University of Toronto.
- Ito, Junko, & Armin Mester. 1995. The Phonological Lexicon. In N. Tsujimura, ed., *The Handbook of Japanese Linguistics*, 62-100. Oxford: Blackwell.
- Jun, Eun. 2002. An Experimental Study of the Effect of Release of English Syllable Final Stops on Vowel Epenthesis in English Loanwords. *Studies in Phonetics, Phonology and Morphology* 8: 117-134. Seoul: Hankwukmunhwasa.
- Kager, René. 1999. *Optimality Theory*. Cambridge: Cambridge University Press.
- Peperkamp, Sharon and Emmanuel Dupoux. 2003. Reinterpreting Loanword Adaptations: The Role of Perception. *International Congresses of Phonetic Sciences* 15: 367-370.
- Peperkamp, Sharon. 2004. A Psycholinguistic Theory of Loanword Adaptations. In M. Ettliger, N. Fleisher, and M. Park-Doob, eds., *Proceedings of the 30th Annual Meeting of the Berkeley Linguistic Society*, 341-352.
- Smith, Jennifer 2006. Loan Phonology is Not All Perception: Evidence from Japanese Loan Doublets. In T. J. Vance, ed., *Japanese/Korean Linguistics* 14: 63-74. Stanford, CA: CSLI.
- Sohn, Ho-min. 1999. *The Korean Language*. Cambridge: Cambridge University Press.
- Vendelin, Inga and Sharon Peperkamp. 2004. Evidence for Phonetic Adaptation of Loanwords: An Experimental Study. *Actes des IVèmes Journées d'Etudes Linguistiques de l'Université de Nantes*, 127-132.
- Website 1. ピンバ? ビンバ?
<http://salami.2ch.net/food/kako/992/992004337.html/> (October 30, 2009).

James Whang
New York University
Department of Linguistics
10 Washington Place
New York, NY 10003

james.whang@nyu.edu