Nasal substitution in vernacular Japanese

1 Introduction

The nature of phonological knowledge is perhaps the most central question in the domain of spoken word processing. On one hand, speakers’ phonological knowledge appears to be quite general. Speakers apply such knowledge when they generate novel sequences, such as nonce borrowings and unique sentences. Speakers also apply such knowledge when they comprehend words spoken wide a variety of variation in phonetic details, such as accent and co-articulation. These observations have led linguists to posit abstract categories such as voiceless and sonorant.

On the other hand, speakers appear to have detailed phonological knowledge about specific words and patterns. Such detailed knowledge seems to emerge through the repeated processing of natural language, and leads to routinization and practice effects. Such an approach predicts that frequency is main factor to behind phonological variation such as assimilation and reduction (see Beckner et al 2009, Bybee 2010, MacWhiney & O’Grady 2015 for general reviews). Very commonly-occurring words are practiced over and over again, resulting in the gradual abbreviation of the articulatory gestures used to produce those words. Reduced articulatory gestures, in turn, lead to phonological assimilation and reduction.

Another possible (although not necessarily incompatible) driving factor behind emergent linguistic phonological knowledge is effective communication. In this approach, a crucial part of phonological processing is the probabilistic inference made during speech production and perception. Speakers us their emergent linguistic knowledge to infer the relative probability of a word given the context. Highly predictable words need less phonetic cues to accurately process than less predictable words. Thus, tokens with improvised phonetic cues due to reduced articulatory gestures are still accurately comprehended when they are predictable. Consequently, speakers need not produce canonical phonetic forms for words in predictable contexts. This approach predicts that that the main factor influencing phonological variation such as reduction and assimilation is the conditional probability of the linguistic unit in its context (see Clopper and turnbull 2018, Jaeger and Buz, Handbook of Psycho; Ernestus 2014). However, whether the most appropriate linguistic unit is the word or the phoneme is still under debate.

Our goal is to contribute to this ongoing research on generative and emergent phonological knowledge with a corpus-based study of nasal substitution in vernacular Japanese. Nasal substitution refers to the synchronic process of replacing a non-nasal moraic syllable with the moraic nasal. Nasal substitution occurs both in standard Japanese and vernacular Japanese. One example of nasal substitution in Standard Japanese is mimetic word intensification (Kubozono, 2015: 263). Intensification occurs as a moraic consonant infix /C/ between the first and second syllables, as shown in (1). In the case of a following voiceless obstruent (1a), the moraic nasal appears as a voiceless geminate, and in the case of a following voiced obstruent (1b), as the moraic nasal.

() /sa-C-pari/ *sappari* ‘clean, openhearted’

/ko-C-sori/ *kossori* ‘secretly, stealthily’

/za-C-buri/ *zamburi* ‘with a plop’

/mz-C-ziri/ manziri ‘without a wink of sleep’

An example of nasal substitution in vernacular Japanese is the substitution between a verb stem-final /r/ onset syllable and the moraic nasal. The examples given in (2) show the standard form on the left with the stem-final /r/ syllable, and the vernacular form on the right with the moraic nasal. Nasal substitution occurs not only at the right edge of a word (2a), but also word internally (2b, 2c).

() a. *taberu nen teben nen* eat + sfp[[1]](#footnote-1)

b. *wakara-nai wakan-nai* ‘do not understand’

*kawara-nai kawan-nai* ‘do not change’

c. *kaeri-nasai kaen-nasai* ‘Go home!’

In this paper, we focus exclusively on the (2a) case of word-final nasal substitution (hereafter, just nasal substitution). Such a study makes two notable contributions beyond the above-mentioned contribution to our theoretical linguistic knowledge on generative and emergent grammar. To date, variationist studies on Japanese are still relatively limited in number, and in the case of nasal assimilation nonexistent. A search for nasal assimilation (Japanese *hatuonbin*) on CiNii yields only three hits, and all three works are about historical Japanese.[[2]](#footnote-2) Contrast this void with, for example, the rich history of studies on t/d deletion in English, beginning over half a century ago with studies such as Fasold (1972), and still continuing today (for a recent example, see Pavlík, 2017). A similarly well-studied phenomenon occurring in the Japanese language is case marker omission (see for example, Heffernan, Imanishi, & Honda, 2018, Fujii & Ono, 2000, and Yoshizumi, 2016). Thus, the first contribution is reporting on a previously undocumented linguistic phenomenon.

The data that we present in this study is of particular interest when we consider the contexts in which the nasal substitution variants occur. According to references, nasal substitution occurs before a following grammatical word beginning with a nasal phoneme, as illustrated by the example sentences given in (3) (the location of the ru/n substitution is underlined). Equivalent standard form examples are given in (4).

() *nanka* *an* *nen.yan.* (KSJ/058/m/2)[[3]](#footnote-3)

something exist dm

‘There’s like this thing.’

*hitori-bun-te tukun-no muzukasii yaro*. (TKC/031/m/7)

one.person-volume-top make-nmlz difficult dm

‘Making for just one person is tough, isn’t it?’

*nan-zi-ni* *kaen* *no*? (KYT/026/f/6)

What-time-dat go.home qm

‘What time will you go home?’

() *sima-ga* *aru nen* (KSJ/018/m/7)

island-nom exist sfp

‘So there’s this island.’

*zibun-de tukuru-no kekkoo taihen ya kara.* (KSJ/095/m/5)

self-dat make-nmlz quite ordeal cop sfp

‘Making it by yourself is quite an ordeal.’

*moo kaeru no*? (KSJ/135/f/9)

already go.home qm

‘Are you going home already?’

Hereafter, we refer to the preceding a following nasal environment as traditional, and differentiate it from all other environments, which we refer to as non-traditional. One of the traditional environments for nasal substitution is preceding the frequently-occurring morpheme *no*, which when following a verb may be a genitive case marker, a nominalizer, a sentence-final particle, or a discourse marker. In vernacular Japanese, this morpheme is variably realized as the moraic nasal *n*. Nasal substitution occurs before the moraic nasal variant as well. In such as case, the resulting double moraic nasal sequence reduces to a single moraic nasal (5).

() verb-*ru* + *no* → verb-*ru* + *n* → verb-*n* + *n* → verb-*n*

() *doo sun?* (KSJ/049/f/6)

what do.qm

‘What will you do?’

However, nasal assimilation also occurs in non-traditional environments

説明しようと思ってんけど

setumee si-yoo to omo-tte.n kedo

explain do-vol quot think-cont sfp

‘I’m thinking that I’ll explain.’

KSJ002F3

いいかなと思ってるけど

ii ka.na to omo-tte.ru kedo

good sfp quot think-cont sfp

‘I’m thinking that is good.’

KYT018M3

田んぼて何すんやろ

tanbo-te nan sun yaro

rice.field-top what do dm

‘What do you do with the rice fields?’

KSJ164F8

ほっとするやろ

hotto suru yaro

relief do dm

‘Well, that’s a relief!’

KSJ026M5

I follow the Romanization rules of the journal of the Linguistics Society of Japan, as described in http://www.ls-japan.org/modules/documents/LSJpapers/j-gkstyle2017.pdf

Age

Gender

Speech Style

Verb Type

Trigger Word POS

Trigger Sound Nasality

Trigger Sound Voicing

Target Word Frequency

Phrase Frequency

Turnbull et al. 2018

p.10

Target Word Predictability: bigram probability of target word given trigger word

Target Sound Predictability: the probability of the target segment (phoneme) conditioned on the preceding segments within the word

Trigger Word Predictability: bigram probability of trigger word given target word

Trigger Sound Predictability: the probability of the trigger segment (phoneme) conditioned on a preceding word boundary (i.e., the segment is word initial)

Turnbull 2018

Number of phonemes in target word

Biphone probability (the probability of the phoneme given the previous phoneme)

Pavlik 2017

Target word conditional probability given the next word

Turnbull (2018) investigated the reduction of phonemes both at the word level and the phoneme level in the *Corpus of Spontaneous Japanese.* At the word level, he found that longer words and more frequent words tended to contain reduced phonemes. At the phoneme level, he found that the biphone probability (the probability of a phoneme given the previous phoneme) correlated with rate of reduction. He also investigated the probability of reduction of each phoneme, and found that /u/ tended to reduce but /r/ did not.

Turnbull et al. (2018)

Examined nasal place assimilation in a corpus of spoken English. They point out that nasal place assimilation

phonology, starting with the moraic nasal. The moraic nasal, along with the moraic obstruent, are the only consonants that occur in coda position, contribute to the moraic weight of the syllable, and assimilates place of articulation to the following consonant (Kubozono, 2015: 9-10).

References

Fasold, R. W. (1972). *Tense marking in Black English: A linguistic and social analysis*. Arlington, VA: Center for Applied Linguistics.

Fujii, N., & Ono, T. (2000). The occurrence and non-occurrence of the Japanese direct object marker o in conversation. *Studies in Language, 24*(1), 1-39. doi:10.1075/sl.24.1.02fuj

Heffernan, K., Imanishi, Y., & Honda, M. (2018). Showcasing the interaction of generative and emergent linguistic knowledge with case marker omission in spoken Japanese. *Glossa: A journal of general linguistics, 3*(1), 72. 71-24. doi:10.5334/gjgl.500

Kubozono, H. (2015). Introduction to Japanese phonetics and phonology. In H. Kubozono (Ed.), *Handbook of Japanese Phonetics and Phonology* (pp. 1-41). Berlin/Boston/Munich: De Gruyter Mouton.

Pavlík, R. (2017). Some new ways of modeling t/d deletion in English. *Journal of English Linguistics, 45*(3), 195-228. doi:10.1177/0075424217712358

Yoshizumi, Y. (2016). *A Canadian perspective on Japanese-English language contact.* (dissertation dissertation), University of Ottawa, Ottawa, Canada.

1. The following glosses are used: cop = copula, dat = dative case, dm = discourse marker, nmlz = nominalizer, nom = nominative case, qm = question marker, sfp = sentence-final particle, top = topic. [↑](#footnote-ref-1)
2. CiNii is the search engine for academic literature written in Japanese. The URL is https://ci.nii.ac.jp/ja. [↑](#footnote-ref-2)
3. Examples taken from the *Corpus of Vernacular Kansai Japanese* are followed by brackets containing the following speaker characteristics: corpus code, eitherKSJ, KYT, or TKC; identifier number; gender, either female (f) or male (m); and age cohort, either . [↑](#footnote-ref-3)