A case study: sound changes in Japanese verbal inflections

Generative phonologists tend to use any sound related patterns for theory construction, and there has been a criticism against this attitude, of which Ohala 1974 is an example (discussed under ***Wug-test***). However, this criticism was not very well taken in the history of generative phonology, at least until recently. A good showcase example comes from sound alternations which are found in Japanese verbal inflectional paradigms. In past tense formation, Japanese exhibits various sound alternations, including post-nasal voicing (/si**n-t**a/ => [si**nd**a] 'died'), /b/-nasalization (/to**b-t**a/=>[to**nd**a] 'flied'), and epenthesis after velar consonants along with deletion of the velar consonants (/ka**k**-ta/ => [ka**i**ta] 'wrote' and /ka**g-t**a/ => [ka**id**a] 'smelled'), etc. McCawley 1968 develops a comprehensive SPE style analysis of these patterns. Vance 1987, however, shows that Japanese speakers do not necessarily inflect nonce verb forms in ways that are expected from existing words; i.e. the sound patterns may not be productive. Despite the fact that Vance 1987 has been an influential, often-cited textbook for Japanese phonology, this experiment has barely been acknowledged in the theoretical literature. The claim that alternation patterns in verbal conjugation in Japanese are not replicable with nonce words is replicated in Vance 1991 and Griner 2005. Davis & Tsujimura 1991 develop an antosegmental analysis of verbal conjugation patterns in Japanese. The same data set has been used in the context of Optimality Theory by Lombardi 1998 and Ito et al. 1999. The latter work explicitly uses the sound pattern as an *active phonological alternation* which supports the existence of lexical stratification in Japanese. Based on a neuro-cognitive experiment, Kobayashi et al. 2012 argue that those alternation patterns are lexicalized, because non application of these alternations elicit N600—a kind of ERP that is related to lexical access (see ***Neurolinguistic experiments***).

Davis, Stuart & Natsuko Tsujimura. 1991. An Autosegmental account of Japanese verbal conjugation. Journal of Japanese Linguistics 13: 117-144.

> This paper appears in the same volume as Vance 1991. The paper offers a comprehensive phonological analysis of sound alternations that occur in Japanese verbal conjugation patterns within the framework of Autosegmental Phonology. Vance's (1987, 1991) study is neither acknowledged or cited.

Griner, Barry David. 2005. Native speaker productivity of Japanese verb tense inflection: A case study. MA thesis, University of California, Los Angeles. Available as a PDF file upon request.

> This MA thesis offers an experiment that is similar to Vance 1987 and 1991, but with a wider set of stimuli. It reached the same conclusion as Vance that Japanese speakers do not inflect nonce words in ways that are expected from the patterns of existing verbs.

Ito, Junko, Armin Mester & Jaye Padgett. 2001 Alternations and distributional patterns in Japanese phonology. Onsei Kenkyuu [Journal of the Phonetic Society of Japan] 5(2): 54-60.

This paper argues that Japanese quasi-etymological lexical stratification is motivated not only by phonotactic considerations but also by active phonological alternations. One piece of evidence used in this study is post-nasal voicing found in Japanese verbal conjugation pattern, whose productivity is doubted by Vance's (1987, 1991) study.

Kobayashi, Yuki, Yoko Sugioka, Takene Ito. 2012. ERP responses to violations in Japanese verb conjugation patterns. Proceedings of CogSci 2012: 611-615.

This paper is an ERP-based exploration to address the issue of whether Japanese verbal conjugation patterns, and alternation patterns observed in this context, are rule-based or lexicalized. When appropriate alternations fail to apply, they observe N600, which is related to difficulty in lexical access.

Lombardi, Linda. 1998. Evidence for MaxFeature constraints from Japanese. Ms., University of Maryland. Available online at http://roa.rutgers.edu.

Within Optimality Theory, this paper argues that featural faithfulness relations are governed by MAX constraints rather than IDENT constraints. It uses Japanese verbal conjugation patterns as the empirical basis of this claim. Vance's (1987, 1991) study is not cited or discussed.

McCawley, James D. 1968. The phonological component of a grammar of Japanese. The Hague: Mouton.

This book develops a comprehensive SPE-style treatment of Japanese phonology, including alternation patterns in verbal conjugation patterns (for SPE, see Chomsky & Halle 1968, discussed under ***Gap between phonology and experimental approaches***). This work assumes that these patterns are governed by phonological rules, and are a part of phonological knowledge.

Vance, Timothy. 1987. An introduction to Japanese phonology. New York: SUNY Press.

This book is a well-known and widely-cited introductory textbook on Japanese phonology. Chapter 12 of the book reports a forced-choice format wug test of verbal conjugation patterns, which shows that the ways in which Japanese speakers conjugate existing verbs do not extend to nonce words.

Vance, Timothy. 1991. A new experimental study of Japanese verb morphology. Journal of Japanese Linguistics 13: 145-156.

This paper reports a follow-up study of Vance (1987), which again shows that nonce words do not exhibit the same alternation patterns as existing words. It concludes that

speakers memorize all the conjugated forms, and the sound alternations observed in the verbal inflections are lexical, rather than grammatical.