

Identity Avoidance and Lyman's Law

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Abstract

Rendaku is a morphophonological process whereby the initial consonant of the second member of compounds becomes voiced. One famous factor that blocks rendaku is Lyman's Law: when a second element already contains a voiced obstruent, rendaku is blocked. This blockage of rendaku due to Lyman's Law is almost exception-less in the contemporary Japanese, and thus has been treated as if it applies uniformly to all forms that fit the structural description. However, our current experiment shows that this uniformity assumption does not hold. Concretely, the experiment reveals a hitherto unnoticed generalization: among those structures that violate Lyman's Law, there are some that are more disfavored than others. More specifically, Japanese speakers disfavor structures with two adjacent identical CV moras with a voiced obstruent onset (e.g. /**dadana**/) more than structures that merely contain two voiced obstruent onsets (e.g. /**dogara**/). In addition to this new descriptive discovery in Japanese phonology, this paper makes three contributions to general linguistic theory: (i) the importance of experimentation in linguistic research; (ii) the role of grammar that cannot be deduced from lexical patterns; (iii) parametrization of the locality of dissimilatory effects within a single language.

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1. Introduction

1.1. Synopsis

Rendaku is a morphophonological process whereby the initial consonant of the second member of compounds becomes voiced (e.g. /**tako**/ 'octopus' → /oo-**dako**/ 'big octopus').¹ One famous factor that blocks rendaku is Lyman's Law (Lyman, 1894): when a second element already contains a voiced obstruent, rendaku is blocked (/tokage/ 'lizard' → /oo-tokage/ 'big lizard'). This law itself has been studied from several different perspectives: theoretical (Ito and Mester, 1986, 2003a; Kawahara and Zamma, in press; Mester and Ito, 1989), historical (Unger, 1975; Vance, 2005, 2007), and experimental (Ihara et al., 2009; Kawahara, 2012, in press; Vance, 1980). This blockage of rendaku has only a few lexical exceptions, and has been formalized as the OCP effect on the [+voice] feature within a morpheme (Ito and Mester, 1986).

This blockage of rendaku due to Lyman's Law is almost exception-less in contemporary Japanese and thus has been treated as if it applies uniformly to all forms that fit the structural description ("two voiced obstruents within a morpheme").

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¹ Here and throughout, when we refer to Japanese words and nonce words, we deploy the standard phonemic transcription system rather than the IPA transcriptions, because phonetic details are not relevant in this paper. See Vance (2008) for the correspondence between the standard phonemic transcription system and the actual phonetic realizations in Japanese.

However, our current experiment shows that this uniformity assumption does not hold. Concretely, the experiment reveals a hitherto unnoticed generalization: among those structures that violate Lyman's Law, there are some that are more disfavored than others. More specifically, Japanese speakers disfavor structures with two adjacent identical CV moras with a voiced obstruent onset (e.g. /**dadana**/) more than structures that merely contain two voiced obstruent onsets (e.g. /**dogara**/). In other words, among those structures that violate Lyman's Law, those that also violate Identity Avoidance (Yip, 1998) are especially dispreferred by Japanese speakers. We conclude that this finding instantiates a case in which experiments reveal a preferential hierarchy between two sets of structures which cannot be learned from patterns in the lexicon.

Going beyond our new descriptive discovery about rendaku and Lyman's Law, this paper contributes to general linguistic theorization in three ways: (i) the effect of Identity Avoidance on items that already violate Lyman's Law has been unknown despite the fact that rendaku is very well studied in the past literature,² and this new finding thus suggests that experimentation is important in linguistic research; (ii) since in the contemporary Japanese lexicon there are a few lexical items that violate Lyman's Law, the distinction between mere Lyman's Law violation and simultaneous violation of Lyman's Law and Identity Avoidance cannot be deduced from the lexical patterns, suggesting the role of grammar that goes beyond lexical patterns; (iii) Identity Avoidance is effective only between adjacent positions, whereas Lyman's Law does not show this locality restriction, despite the fact that they are both dissimilatory forces—this result supports the idea that the domain of dissimilatory forces can be parameterized (Odden, 1994; Pulleyblank, 2002; Suzuki, 1998), even within a single language.

1.2. Background and the current experiment

One factor that has been claimed to affect rendaku application is the avoidance of identical CV mora sequences (i.e. Identity Avoidance: Yip, 1998): rendaku is less likely to apply when rendaku results in two adjacent identical moras (e.g., schematically, */**iga**+**ganiro**/ from /iga+/+/**kaniro**/). This effect of identity avoidance was first hinted at by Sato (1988) and reiterated by Labrone (2012). Irwin (2014) on the other hand denies that there is such an effect based on the lack of statistical evidence in the lexicon. However, in a recent experimental study using nonce words, Kawahara and Sano (2014) show that avoidance of two adjacent identical CV moras does reduce the applicability of rendaku.³ The nonce-word experiment shows that rendaku is less likely to apply when it would result in two adjacent identical moras across a morpheme boundary (e.g. /**iga**+**ganiro**/) than when it would not (e.g. /**iga**+**daniro**/). That study, however, is limited in that it tested the effect of Identity Avoidance only in environments where Lyman's Law is irrelevant. The Identity Avoidance effect identified by Kawahara and Sano (2014) can thus be used to test the uniformity assumption about Lyman's Law—whether all Lyman's Law violations are equally disfavored by Japanese speakers.

Therefore, extending on Kawahara and Sano (2014) (and, to a lesser extent, other previous experimental studies on rendaku and Lyman's Law (Ihara et al., 2009; Kawahara, 2012; Vance, 1980)), the current experiment tests the effects of Identity Avoidance on those words that already violate Lyman's Law. The primary question is whether, when rendaku violates both Identity Avoidance and Lyman's Law, it would be judged to be worse than when it violates only Lyman's Law. The experiment shows that Japanese speakers judge the simultaneous violation of Identity Avoidance and Lyman's Law as worse than a mere violation of Lyman's Law. The uniformity assumption is therefore shown not to hold.

The current experiment was a two-way forced-choice wug-test (Berko, 1958) on rendaku, testing the effect of Identity Avoidance at the CV moraic level on those words that violate Lyman's Law. Identity Avoidance at the moraic level—not at the consonantal level—was tested, because CV sequences constitute an important phonological unit in Japanese; i.e. the mora (Ito, 1989; Kubozono, 1989; Labrone, 2012).⁴ The current experiment also tested the locality of Identity Avoidance and Lyman's Law. The experiment built on a naturalness judgment study by Kawahara (2012), itself being a follow-up study of Ihara et al. (2009), and Vance (1980) in particular (see also Kawahara, *in press* for a recent review of the experimental studies of rendaku).

² Rendaku is perhaps one of the most well-studied phonological phenomena in Japanese, both in traditional Japanese studies and in generative studies (Fukuda and Fukuda, 1994; Haraguchi, 2001; Ihara et al., 2009; Irwin, 2009; Ito and Mester, 1986, 1995, 1996, 1999, 2003a,b; Kawahara, 2012; Kindaichi, 1976; Kozman, 1998; Kubozono, 2005; Kurisu, 2007; Kuroda, 2002; Mester and Ito, 1989; Ohta, 2013; Ohno, 2000; Okumura, 1955; Otsu, 1980; Rosen, 2003; Sugioka, 2002; Sugito, 1965; Tamaoka et al., 2009; Vance, 1979, 1980, 2005, *in press*; Yamaguchi, 2011; Zamma, 2005). This is only a partial list, and shows how well rendaku has been studied. See Irwin (*in press*) for a recent compilation of work on rendaku.

³ Avoidance of identical structures in proximity, which has been formalized in the theoretical literature as the OCP effects, is observed at various phonological levels in many different languages (e.g. Alderete and Frisch, 2007; Berent, 2013; Frisch, 2004; Frisch et al., 2004; Leben, 1973; McCarthy, 1979, 1986; Odden, 1994; Suzuki, 1998; Yip, 1988, 1998).

⁴ Two anonymous reviewers asked if Identity Avoidance effects at the consonant level should be tested in a future study. Indeed, our new experiment in progress attempts to tease apart the effect of Identity Avoidance at the consonantal level and the effect of Identity Avoidance at the moraic level. The preliminary analysis shows that the effect of Identity Avoidance at the moraic level is clear, whereas the effect of Identity Avoidance at the consonant level is also tangible but less substantial.

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