

Word-Prosodic Typology and the Traps of False Similarity: Japanese and Slovene

Nina GOLOB

University of Ljubljana, Slovenia

Nina.golob@ff.uni-lj.si

Abstract

The article briefly describes the historical development of language prosodic typology, introduces the two word-prosodic prototypes proposed by Hyman, and explains the positioning of pitch-accent languages on the lexical level. It points out the false similarity between Japanese and Slovene that was created with the introduction of the feature [\pm culminative] and proposes to expand it with the feature [\pm eliminative], which phonetically justifies the difference between pitch-accent systems and the stress-accent prototype.

Keywords: prosodic typology, features, pitch-accent languages, Japanese, Slovene

Povzetek

Članek na kratko opisuje zgodovinski razvoj prozodične tipologije jezikov, predstavi dva prozodična prototipa na besednem nivoju, ki ju je predlagal Hyman, in pojasnjuje položaj tonemskih jezikov na leksikalnem nivoju. Opozarja na lažno podobnost japonščine in slovenščine, ki je nastala z uvedbo značilnosti [\pm kulminativen], in predlaga njeno razširitev s funkcijo [\pm eliminativ], ki fonetično utemeljuje razliko med tonemskimi sistemi in jakostno-naglasnim prototipom.

Ključne besede: prozodična tipologija, razločevalne lastnosti, tonemski jeziki, japonščina, slovenščina



1 Introduction

Prosodic typology classified world languages by setting two opposite prototypes, tone languages such as Cantonese, Yoruba, etc. with the feature [+tonal] and stress languages such as English, Turkish, etc. with the feature [-tonal]. In the history of prosodic research, research on tone languages and their prototype progressed quickly and successfully implemented the binary tonal distinction *high* (H) and *low* (L) on each segment, leaving out the so-called pitch-accent languages. Stress on the other hand was phonetically elusive and was considered a mental construct. The already marginal phonological status of stress was weakened even further when the binary tone system proved to be applicable for intonation studies. This approach blurred pitch-accent languages such as Japanese, Swedish, etc. with stress languages because they share a common property; that is the feature [+culminative] also called *accent*.

Intonation phonology became the means of comparison among languages. The ToBI models, the transcription and annotation tools of prosodic events which would include both intonation and voice flow segmentation in units of study, define whether languages differ in the types of tones or/and tonal inventories they have, and consequently divide languages to tone languages, accent languages, and languages with no lexical specification of prosody.

Though ToBI models are indispensable in computer technology, which requires automated analysis of large speech corpora annotated with standardized annotation strings, Jun (2005, p. 437) points out that comparisons of prosodic systems based on phonetic descriptions show certain limitations. One very important limitation is that the similarities shown in the surface realization do not guarantee the same underlying distinctive prosodic features or structures and may be entirely accidental (also Gussenhoven, 2007; Ladd, 2008 [1996]; Hyman, 2011). The types of tones cannot distinguish stress-accent languages from lexical pitch-accent languages because the autosegmental-metrical model (AM model) does not specify whether pitch accent is a lexical property or a postlexical property.

As an example of such coincidence, Gussenhoven (2007, p. 256) points at the surface similarity between English and Tokyo Japanese H*L to write that 'while phonologically comparable, the pitch accents of Japanese and English have very different morphological statuses'. In Japanese, they form part of the underlying phonological specification of morphemes, along with the vowels and consonants. In English, on the other hand, pitch accents are intonational and therefore morphemically independent of the words they come with, and are chiefly used to express the information status of the expression. Closely related to this is also the false similarity of surface representations of different accent patterns in declarative intonation presented for Japanese and Slovene (Golob, 2011).

Therefore, this research will return to the so-called broad-stroke typology, where phonological systems are treated level-ordered, cf. the prosodic property of an utterance is a combination of prosody at the lexical level and prosody at the post-lexical level, with the former constraining the latter and the latter including the prosodic features of the former.

The structural approach, where there is a clear distinction between word-level tones and stress at the lexical level, is indispensable for practically any interdisciplinary research involving accounting for the structural properties of phonological systems (and their interface with morphology and syntax), predicting the effects that stress (but not tone) can have on segments, tracing linguistic change, conducting fieldwork on understudied and endangered languages, and last but not least, explaining foreign accents in second language acquisition.

2 Structural approach to prosody and difficulties in L2 acquisition

Foreign accents in second language production are caused by interference from the phonological system and phonetic realization of the speaker's first language.

Within the area of prosody, several studies have reported that lexically linked prosodic features in L1 are more likely to be transferred to L2 prosody and are more difficult to suppress than the post-lexical ones (Jun & Oh, 2000; Ueyama, 2000; Mennen, 2007; Golob, 2021).

Furthermore, sudden changes at the paralinguistic level of L2 speech, such as the inclusion of prosodic focus or the use of emotional speech is reported to destroy the already correctly adopted lexical or intonational prosody (Golob, 2008; van Maastricht et al. 2016; Kim, 2018).

The above findings show that processes that contribute to the foreign-accentedness in second language production can best be explained level-ordered or in other words, through the recognition of the properties involved at different prosodic levels and their mutual interactions.

3 The aim of this study

From teaching experience to Slovene students of Japanese as well as based on the findings about foreign accents in second language production, this study will introduce and evaluate the present word-prosodic typology proposed by Hyman (2006, 2009) through the results of a large acoustic survey that was recently conducted by Golob (2021).

Beckman, 1986). It is also classified as a word-pitch language as opposed to a ‘tone language’ like Mandarin Chinese or an intonation language like English (Pike, 1948). It carries a distinctive lexical pitch accent, which is marked phonetically by the tonal change from H to L (Pierrehumbert & Beckman, 1988; Kubozono, 2008). Tokyo Japanese accent/tone is culminative, a property it shares with stress-accent systems. However, the lexicon is divided into tonic words (accented type) with H-L tonal change and atonic words (unaccented type) that convey no such H-L change. In other words, any given word in theory gets $n+1$ accent possibilities, n being equal to the number of full moras, tone-bearing units in Tokyo Japanese (Labrune, 2012).

(1)		‘pillow’+nom.	‘heart’+nom.	‘mirror’	‘fish’
	a. accentual	ma̠kura ga	koko̠ro ga	kagami̠ ga	sakana ga
	b. tonal	MAkura ga	koKOro ga	kagaMI ga	sakana ga
		H L	H L	H L	

Some major Japanese dialects are reported to deviate from the standard pitch accent, mainly differing in the number of tonal patterns involved, and few of them are accentless (Uwano, 1999; Kubozono, 2012)

Just as Tokyo Japanese was the base for the so-called standard language, Standard Slovene was also constructed upon dialects. There are two prosodically distinct dialect types, the tonal or pitch-accent Slovene and the non-tonal or stress-accent Slovene (Toporišič, 2004 [1976]; Šuštaršič & Tivadar, 2001). The pitch-accent Slovene has distinctive tones, namely the acute (a long rising tone) and the circumflex (a long falling tone) that appear on long stressed vowels. In the absence of a long vowel stress falls on the final syllable still carrying tones.

Fixed stress is the norm in Slovene. It is obligatory on every lexical word. In stress-accent Slovene stressed syllable is prominent in the sense that it is longer and conveys higher tone and greater dynamics compared to unstressed syllables (Lehiste, 1970; Bhaskararao & Golob, 2006).

(2)		‘sausage’	‘cupboard’
	a. accentual	klo*bása	o*mâra
	b. tonal	klobasa	omara
		L H	H L

In overall, the three standard languages, the Tokyo pitch-accent Japanese, the pitch-accent Slovene, and the stress-accent Slovene are described with the following prosodic features according to Hyman’s word-prosodic typology.

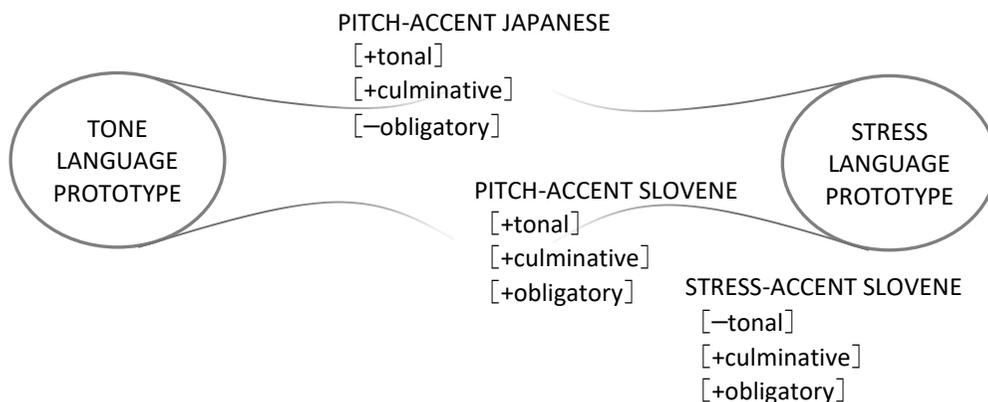


Figure 2: Japanese and Slovene according to Hyman's word-prosodic typology

According to Figure 2, by introducing the feature [\pm obligatory] the three language systems became prosodically distinct, which, from the point of view of phonology, could be completely satisfactory. However, the feature [\pm obligatory] alone does not make it possible to understand the prosodic typological differences between the two languages. It seems that it is not directly applicable neither to prosodic function nor to the nature of the stress language prototype, and would only partially or not at all help explain processes that appear during second language acquisition.

In the following section, we will therefore introduce a bidirectional Japanese – Slovene L1 and L2 study that was conducted by Golob (2021), and of which acoustic measurements indicate a prosodic property of a stress-accent language, which is very obvious and is a current topic in phonetic research, but has been overlooked in discussions on prosodic typology features.

5 Stress language prototype revisited: the feature [\pm eliminative]

Golob (2021) conducted an acoustic experiment on Japanese and Slovene as native languages (L1) to show that, although the [+culminative] feature is common to both languages, there is a difference in the parameters responding to it as well as the way they respond. Furthermore, based on the “Integrated Contrastive Model” (Rasier & Hiligsmann, 2007) she observes how acoustic parameters respond to the feature [+culminative] in Japanese and Slovene as second languages (L2) to show that the prosodic mechanism at the word level is the most uncompromising in a language that establishes the overall prosodic circumstance.

Measured acoustic parameters, namely vowel formants, duration, fundamental frequency, and intensity match the four prosodies reported by Pfitzinger (2006),

thought to be essential for the linguistic aspect of prosody (vs. para-linguistic, extra-linguistic).

In general, the results for L1 Japanese and L1 Slovene show clear trends and support previous results. They serve as the benchmark for the L2 Japanese and L2 Slovene results and point out some new and interesting trends.

In L1 Japanese, pitch is the only prosodic feature that shows a systemic and uniform response, namely that accented vowels have a statistically higher pitch than the following vowels. In L1 Slovene, on the other hand, the pitch showed violent reactions but due to unclear tendencies, we consider it to be strongly structured. In other words, we assume that factors at higher metrical levels influence acoustic pitch values. The other three parameters in L1 Slovene show uniform responses; accented vowels are statistically longer than the following vowels, they show no apparent vowel reduction compared to the unaccented vowels, and they are statistically pronounced with higher intensity than the following vowels. The intensity response was rated as less reliable, with data showing statistical significance in three out of five informants.

Results for the second languages provide further important insights. L2 Japanese shows no correspondence to the [+culminative] feature, the deviation in the acoustic data is negligible for all speakers. On the other hand, L2 Slovene shows much more prosodic activity. The pitch showed violent responses as in L1 Slovene but the trend is unclear and requires further investigation. On the other hand, vowel formants are the only parameter that does not respond to the [+culminative] feature, and no vowel reduction is observed. In this context, the L2 Slovene manifestation of the duration response deserves further attention. Four out of five informants showed statistically greater duration on accented vowels and at the same time no vowel reduction, suggesting that Japanese speakers of Slovene used the segmental long-short distinction found in their native language to respond to the [+culminative] feature.

The above results suggest that the interpretation of word-level syntagmatic prominence in the case of stress language prototype needs to be reconsidered, and as suggested, should be defined bidirectionally. To rephrase, a part of a phonological word is prominent, either because the parameters of the outstanding part are in some way superiorized compared to those of the rest of the word (maximizing the paradigmatic opposition), or because the parameters of the rest of the word are in some way inferiorized (minimizing the paradigmatic opposition), or both.

The [+culminative] feature represents the former process, namely the superiorization of one part of a phonological word. As for the minimalization process to fulfill the insufficiency with the conventional typological features, Golob (2021) proposed a new prosodic typological feature called [\pm eliminative], the actual prosodic role of which should yet be investigated.

References

- Beckman, M. E. & Pierrehumbert, J. B. (1986). Intonational structure in Japanese and English. *Phonology Yearbook 3*, pp. 255-309.
- Bhaskararao, P. & Golob, N. (2006). What matters in Slovene accent? An acoustic comparison of stress and pitch accents. Paper presented at the *Slovene International Phonetic Conference (SloFon 1)*, Ljubljana.
- Golob, N. (2008). Speaking emotions in Japanese. *Asian and African Studies*, 12(3), pp. 57-70.
- Golob, N. (2011). Acoustic prosodic parameters in Japanese and Slovene: Accent and intonation. *Acta Linguistica Asiatica*, 1(3), pp. 25-44.
- Golob, N. (2021). *Phonetic evidence for an internal structure of the prosodic module: Japanese and Slovene based on the Integrated contrastive model* (in Japanese). PhD. Tokyo University of Foreign Studies.
- Gussenhoven, C. (2007). Intonation. In P. de Lacy [ed.] *The Cambridge Handbook of Phonology*, pp. 253-280. Cambridge: Cambridge University Press.
- Hyman, L. M. (2006). Word prosodic typology. *Phonology*, 23(2), pp. 225-257.
- Hyman, L. M. (2009). How (not) to do phonological typology: The case of pitch-accent. *Language Sciences*, 31, pp. 213-238.
- Hyman, L. M. (2011). Tone: Is it Different? *The Handbook of Phonological Theory*, pp. 197-239. Oxford: Blackwell.
- Hyman, L. M. (2018). What is phonological typology? In L. M. Hyman & F. Plank [Eds.] *Phonological Typology*. Berlin: Mouton De Gruyter.
- Jun, S. A. (2005). *Prosodic Typology: The Phonology of Intonation and Phrasing*. Oxford: Oxford University Press.
- Jun, S. A., & Oh, M. (2000). Acquisition of second language intonation. *The Journal of the Acoustical Society of America*, 107(5), 2802-2803.
- Kim, J. (2018). Heritage speakers' use of prosodic strategies in focus marking in Spanish. *International Journal of Bilingualism*, 1-19.
- Kubozono, H. (2008). Japanese accent. In Sh. Miyagawa & M. Saito [eds.] *Handbook of Japanese Linguistics*. Oxford: Oxford University Press.
- Kubozono, H. (2012). Varieties of pitch accent systems in Japanese. *Lingua* 122(13), pp. 1395-1414.
- Labrone, L. (2012). *The phonology of Japanese*. Oxford: Oxford University Press.
- Ladd, D. R. (2008[1996]). *Intonational phonology*. Cambridge: Cambridge University Press.
- McCawley, J. (1978). What is a tone language? In V. A. Fromkin [ed.] *Tone: A linguistic Survey*, pp. 113-131. New York: Academic Press.
- Mennen, I. (2007). Phonetic and phonological influences in non-native intonation: An overview for language teachers. *QMUC Speech Science Research Centre Working Papers WP-9*, 1-17.
- Pfifzinger, H. R. (2006). Five dimensions of prosody: Intensity, intonation, timing, voice quality, and degree of reduction. *Proceedings from the conference Speech prosody (SP 2006)*, pp. 105-108.
- Pierrehumbert, J. & Beckman, M. E. (1988). *Japanese tone structure*. Cambridge: The MIT Press.

- Pike, K. L. (1948). *Tone languages: A technique for determining the number and type of pitch contrasts in a language, with studies in tonemic substitution and fusion*. Ann Arbor: University of Michigan Press.
- Rasier, L. & Hiligsmann, P. (2007). Prosodic transfer from L1 to L2. Theoretical and methodological issues. Paper presented at the *Symposium on Discourse Prosody Interfaces*, Geneva.
- Tivadar, H. & Šuštaršič, R. (2001). Otvorena pitanja standardnoga slovenskog izgovora. *Govor*, 18(2), 113-122.
- Toporišič, J. (2004 [1976]). *Slovenska slovnica*. Maribor: Obzorja.
- Ueyama, M. (2000). *Prosodic Transfer: An Acoustic Study of L2 Japanese & L2 English*. PhD. UCLA.
- Uwano, Z. (1999). Classification of Japanese accent systems. In S. Kaji [Ed.] *Proceedings of the Symposium 'Cross-Linguistic Studies on Tonal Phenomena, Tonogenesis, Typology, and Related Topics'*. ILCAA, Tokyo, pp. 151-186.
- van Maastricht, Krahmer, E. & Swertz, M. (2016). Prominence Patterns in a Second Language: Intonational Transfer From Dutch to Spanish and Vice Versa. *Language Learning*, 66(1), 124-158.