

Schwa and stress in some Paiwan dialects

It is noted that quantity-sensitive stress systems assign stress to particular syllables in the stress domain depending mainly on syllable weight and prominence; however, different weighting scales may coexist in a single language (Gordon 2002). In two village dialects of Paiwan, an Austronesian language spoken in Taiwan, the assignment of stress is considered quality-sensitive or sonority-driven (Chen 2006, Yeh 2011), as languages mentioned by Kenstowicz (1997) and de Lacy (2004), in which the location of stress is determined by vowel quality/sonority. This study firstly argues that stress in these Paiwan dialects is not quality-sensitive or sonority-driven stress, but the consequences of the special phonological property of schwa, which is too weak to bear stress and phonotactically restricted. Also, an Optimality-Theoretic analysis is provided, employing metrical constraints disfavoring schwa as metrical peak, and those give weight to coda consonants only when the nucleus is a schwa. The interaction between metrical and syllable constraints results the pattern in Paiwan. A preliminary phonetic measurement is conducted to show that vowel duration of schwa is significantly shorter than other peripheral vowels in Paiwan.

Different from the regular penultimate stress pattern in most Paiwan dialects (Ho 1977), stress favors /i u a/ over schwa /ə/ in Kazangiljan and Piuma Paiwan. Despite the preference for stressed vowels, stress in all Paiwan dialects behaves the same: i) penultimate stress is the prevalent pattern, as in (1a), and ii) syllables derived from underlying vowel clusters attract stress in the stress domain, as shown in (1b). Kazangiljan and Piuma are considered quality-sensitive or sonority-driven (Chen 2006, Yeh 2011) because stress shifts to peripheral vowels /i u a/ within the rightmost two-syllable domain, as in (2). However, in languages with quality-sensitive stress such as Takia (Ross 2002), the unmarked pattern surfaces when vowels are of the same sonority; and it is not the case in Kazangiljan and Piuma Paiwan, as in words with schwas CəCəC (vs. CíCiC, CúCuC, CáCaC). Stress in these Paiwan dialects is not quality-sensitive, but the consequence of avoiding stressed schwa. The weak property of schwa is not only observed in stress, but also in segmental distribution: schwa never occurs in word-final open syllables and in monosyllabic words, while other vowels /i u a/ can. The data indicate that a CəC syllable is superior to a Cə syllable in terms of foot peak. Thus the weight scale is CVVC > CVC, CV > CəC > Cə (V stands for /i u a/). To put it another way, stress is sensitive to the weight of nucleus and coda consonant does not play a role, only when the nucleus is too weak (as a schwa), coda consonants contribute weight.

In an Optimality-Theoretic analysis, constraints differentiating /i u a/ from /ə/ is needed, as well as constraints sensitive to the weight of coda consonant only when the nucleus is a schwa. With a dominant constraint ALL-FRONT, ranking Weight-to-Stress Principle (WSP)

over FT-BIN ensures heavy syllables (bimoraic) attract stress. The set *PEAK/ə >> *PEAK/i u a shows stress prefers peripheral vowels over schwas. In addition, a helper constraint WEIGHT-BY-POSITION(schwa) is activated under the condition where schwa is the only syllable nucleus to carry stress. Coda consonants in Paiwan are weightless in general, but they contribute weight if its previous vowel is a schwa. Through the interaction of constraint, the assignment of stress in Kazangiljan and Piuma Paiwan is able to encompass different scales of weight sensitivity.

(1)	a.	[lá.vu]	‘ash’	b.	[ʃi.káw] /sikau/	‘net bag’
		[qí.[as]	‘moon’		[pa.kájv] /pakaiv/	‘give supper’
		[t̃sa.í.ŋa]	‘ear’		[pu.va.sán] /puvasaan/	‘taro fields’
		[sa.ví.ki]	‘betel nut’		[və.í] /və[i-i/	‘dig (Imperative)’

(2)	a.	[va.kə.lá]	‘arrow’	c.	[cə.vús]	‘sugarcane’	e.	[qa.pə.dú]	‘gall’
	b.	[kə.rí]	‘small’	d.	[tsu.qə.láʔ]	‘bone’	f.	[kə.ríʔ]	‘sparrow’

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