Realization of Weak Vowels in Squliq Atayal

Hui-chuan J. Huang
Academia Sinica

Consonant clusters (CC) are quite common in Atayal orthography as the result of conventionally omitting intervening weak vowels in pronunciation. These weak vowels or vowel-like articulations between consonants may be interpreted as either phonetic transitions or phonological targets by different scholars. In this talk I will discuss the phonological properties of the pretonic weak vowels in Squliq Atayal, an endangered Austronesian language in northern Taiwan, and show how the realization of the vowels are influenced by metrical structures, the sonority profile of a syllable, and the qualities of adjacent segments at the same time.

In Squliq Atayal, pre-penultimate vowels before final stressed syllables undergo weakening, as has been hinted or described in previous studies (Egerod 1965, 1980, Li 1980, 1981, Rau 1992). While it is uncontroversial that these reduced vowels come from an underlying full vowel, how to analyze other pretonic weak vowels has remained unclear in the literature. In the present study, based on first-hand data, it is argued that non-alternating weak vowels whose positions are predictable can be reanalyzed as epenthetic in the synchronic grammar despite the fact that they develop from a phonemic vowel diachronically. In penultimate syllables, some unexpectedly reduced vowels consistently correspond to the vowel *u* in non-suffixed forms as the result of historical schwas changing to *u* in final syllables. These weak vowels, which involve ə~u alternations, are shown to neither derive from vowel reduction nor come from epenthesis in the synchronic grammar; rather, they are better analyzed as empty vowels in the lexical representation.

The weak vowels in Squliq mostly realize as an apical vowel after a sibilant onset and as a schwa after other consonants, regardless of their input representations, suggesting that the quality of the preceding consonant on the surface plays a major role. A closer examination of the data reveals that metrical feet also influence the manifestation of the vowels. Crucial data lie in a comparison of the weak vowels after sibilant onsets versus glide onsets both within and outside the assumed right-aligned iambic feet in the language. Weak vowels after /s/ realize as apical in both prepenultimate and penultimate positions (i.e. outside vs. within feet). In contrast, while prepenultimate weak vowels after /j/ similarly show up as apical after turning the onset /j/ to [z], penultimate empty vowel slots surface as [i] and cause the /j/ onset to become alveopalatal [ʑ]. The observation is based on the assumption that penultimate empty vowels are parsed to feet, and also on an analysis of the *j*~*z*~*ʑ* alternations in which the onset /j/ turns to a fricative before a weak vowel in order to arrive at a better sonority profile within a syllable (and it further changes its place features to anterior before a weak vowel). The interplay of prosodic and segmental factors

in the realization of the weak vowels is formalized within OT (McCarthy and Prince 1993, Prince and Smolensky 1993/2004) in the proposed analysis.

Data: (Orthography and phonemic representations precede phonetic transcriptions.)

(1)	*Prepenultimate*	*Penultimate*	*Related forms*
a.	sgaliq /s, ɣaliq / [sɪ.-ɣa.liq] ‘tear, CV’	kinrsgan /k, in, rVʔusVɣ/ [k<in>.rə.sɪ.ɣ-an] ‘weight’	k’usuw [kə.ʔu.suw] ‘heavy’
b.	zmagal /jmaɣal/ [zɪ.ma.ɣal] ‘five’	thzikan /tɬjVk, an/ [təɬ.ʑi.k-an] ‘seat’	thzyuk /tɬjVk/ [təɬ.ʑuk] ‘sit’

Note: The symbol [ɪ] stands for an apical vowel here. ‘V’ in the input represents the empty vowel. In (1a), the prepenultimate /i/ vowel does not reduce because the *in* sequence comes from an infix; ‘CV’: circumstantial voice marker.

Analysis:

(2) /j/ outside the metrical foot:

/jmaɣal/	*ji	*jə	Dep(F)	*Ft/weak V	Ident-[son]	*Multi-linked
a. jə.ma.ɣal		*!	*			
➢ b. zɪ.ma.ɣal					*	*
c. zə.ma.ɣal			*!		*	

(3) /j/ within the metrical foot: /tɬjVk, an/

➢ a. təɬ.ʑi.kan					*	*
b. təɬ.zɪ.kan				*!	*	*
c. təɬ.ji.kan	*					*
d. təɬ.ja.kan			*!			

(4) /s/ outside the metrical foot: /k, in, rVʔusuɣ/

➢ a. kin.rə.sɪ.ɣan				*		
b. kin.rə.ɕi.ɣan			*!			*

Selected references:

Egerod, Søren. 1980. *Atayal-English Dictionary*. Scandinavian Institute of Asian Studies Monograph Series No. 35. London and Malmö: Curzon Press. **Li, Paul Jen-kuei. 1980.** The phonological rules of Atayal dialects. *Bulletin of the Institute of History and Philology* 51.2: 349-405. Taipei: Academia Sinica. **Li, Paul Jen-kuei. 1981.** Reconstruction of Proto-Atayalic phonology. *Bulletin of the Institute of History and Philology* 52.2: 235-301. Taipei: Academia Sinica. **McCarthy, John and Alan Prince. 1993.** Prosodic Morphology I: Constraint Interaction and Satisfaction. Ms., University of Massachusetts, Amherst, and Rutgers University. **Prince, Alan, and Paul Smolensky. 1993/2004.** Optimality Theory: Constraint Interaction in Generative Grammar. Ms., University of Massachusetts, Amherst, and Rutgers University (1993). Malden: Blackwell Publishers, 2004.