

The Measurement of Final [i] vs [ii] and [u] vs [uu] in Squliq Atayal

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This study is to measure [i], [ii], [u] and [uu] durations in Squliq Atayal being located in final position. Five native speakers have to read the sentence: *kmal na _____ qu Tali*. meaning Tali says _____. five times for each word. Ten, nine, eleven and eleven words ending in [i], [ii], [u] and [uu] respectively were selected as the target words. Because no report claims previous consonants affect the lengthening of the final vowels, target words were randomly selected without regarding the pre-vowel consonants. However, all testing words were constructed in the same syllable structure: CV#, selected from *Atayal-English Dictionary* edited by Søren Egerod. Not a single loan word was chosen.

TOSHIBA digital memory recorder DMR-900S was used to record subjects. TOSHIBA Voice Manager VM100 transmitted all tokens as waveforms. Each token was measured for its durations in spectrogram by Software Cool Edit 2000. For each speaker, the five representations were combined to get a mean score for each word ($Mean_i$). Each speaker's ten mean scores were subjected to a repeated t-test to see if each speaker distinguishes final vowels in terms of duration. In addition, every subject's ten mean scores were combined to gain a final vowel's MEAN SCORE ($MEAN_g$). The five subjects' MEAN SCORES were also subjected to a repeated t-test in order to see if the Squliq dialect draws a distinction between [i] vs [ii] and [u] vs [uu].

The results showed that in $MEAN_g$ there is no significant between [i] vs. [ii] and [u] vs. [uu]. However, the author found that four subjects among five do have significant differences in $Mean_i$ [i] vs. [ii] lengthening. Three subjects do not have significant differences in $Mean_i$ between [u] vs. [uu] but others have lengthening differences in [u] vs. [uu]. One explanation is people in Taiwan speak Taiwan

Mandarin and Taiwanese in daily life, but not Squliq. Both languages are acquired and communicated by subjects and neither has final verb lengthening contrast. Therefore, Squliq may be influenced to lose its verb final contrast because of language contact. The other question is how to explain that Squliq seems to lose its [uu] contrast before [ii]. Janson (1979:101) claimed that if a vowel in any language was produced at high speed, or without an accent, or both, it would become reduced, i.e. centralized. [u]'s articulatory positions are fulfilled--[+hi, +back, +round] but the suprasegmental feature [+long] is lost. /uu/ lost its prolong feature, which is not in distinction from /u/. Thus, adopting Janson's observation, the author proposes that [u] and [uu] take speakers more time to produce since it involves more features than [i]-[+back] and [+round]. Because producing [uu] needs to take more time to hit the target, the lengthening [+long] is not fulfilled in the end and thus there is no difference between [u] and [uu]. Therefore, [i] vs. [ii] maintains better lengthening contrast than [u] vs. [uu].

REFERENCES

Janson, Tore. 1979. Vowel duration, vowel quality, and perceptual compensation. *Journal of Phonetics* 7:93-103.