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On the Marshallese semi-glides and underspecified vowels

Abstract: Marshallese (henceforth MRS) is a language of the Micronesian family whose phonology has been extensively studied over the last few decades. The particularity of MRS phonology is manifested in the interaction between consonants and vowels: the latter are said to be 'colored' by the surrounding consonants' secondary places of articulation (Bender 1968). This proposal entails that there is a set of underspecified vowels, either three (Bender 1968, Choi 1992) or four (Abo et al. 1976, Hale 2000), and these are specified only for height (Bender 1968, Choi 1992, Abo et al. 1976) or height and ATR (Hale 2000). Backness and roundness features are provided by the neighbouring consonants. However it is not always the case that the vowel reflects the features of the consonants and thus Bender (1968) proposes that there are also semi-glides, namely j-w-h, presumably inside the nucleus that are responsible for the final phonetic output. We will propose that there are in fact only two underspecified vowels and that the presence of those semi-glides is not required in all circumstances if at all. Within the Elemental Theory framework (Kay, Lowenstamm & Vergnaud 1985, Harris 1994, Backley 2011 among many others) vowels are a combination of three different elements specifically: [I] for the front (or -backness) feature, [A] for the low (or -high) feature, and [U] for the roundness feature. The elements can be combined; for example if the head is [A] combined with a dependent [I] then the head is said to be palatalized yielding a more high and front vowel i.e. [æ]. We assume that palatalized consonants possess the [I] element and rounded consonants the [U] element. However [A] is not the velar feature and thus we will assume that velarized consonants have no influence whatsoever on the vowels in their vicinity. Consider the following examples (from Abo et al 1976, MOD 2009)[1]:

(1)   a. Palatalized   b. Rounded   c. Velarized
        mʲitʲ 'dead, numb'   kʷukʷ 'gathered together'   kˠɯrˠ 'dig'
        tʲelʲ 'grown over'   lʷoŋʷ 'a fly'   bˠəbˠ 'pandanus'
        pʲælʲ 'to die'   lʷɒŋʷ 'ant'   pˠɑtˠ 'slow'

There are three possible phonetic outputs for each type of consonants and their elemental compositions are provided in (2)[2]:

(2)   i = [I]   u = [U]   ɯ = […]
           e = [A; I]   o = [A; U]   ə = [A]
           æ = [A; I]   ɒ = [A; U]   ɑ = [A]

Elemental Theory being part of auto-segmental theories we consider that each phoneme is represented by a position x that is associated with phonological quantity i.e. the comparative duration between different segments. Each x is positioned on a skeletal tier or skeleton and, with the help of association lines, is linked to the element(s) that represent the phonetic output. In (2) if we assume that [I] and [U] represents the consonants' secondary places of articulation,

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[1] For reasons too long to explain in this abstract we choose to use a three heights phoneme inventory even though the authors of the dictionnary use four heights.

[2] We have not found an explanation yet for the distribution of [A] as the head and [A] as a dependant but we assume so far that the answer is to be found from a diachronic perspective.

and if we assume that these elements spread from the consonantal slots to the vocalic slots, then when these elements are stripped from the vocalic content then the result is either [A] or [...] which we propose are the two underspecified vowels. Moreover [...] surfaces as the least voiced vowel [ɯ] which is also MRS epenthetic vowel.

There are however circumstances where the vowel does not reflect consonantal features. For example it is possible to find front vowels next to velarized consonants, round vowels next to non-round consonants, and back vowels next to palatalized consonants. These peculiarities only happen in initial and final vowels as well as long medial vowels. Bender (1968) proposes a set of three semi-glides (y-w-h) to account for the lack of consonantal influence. In terms of auto-segmental theory those semi-glides cannot occupy their own slots. Moreover Choi (1992) finds no phonetic evidence for their presence. We thus need to explain : a) the presence of [I] and [U] as part of the vowel composition despite their absence from the consonants and b) why is [I] forbidden to spread in certain circumstances. A diachronic analysis might provide some evidence :

(3)   a. PMC *ika > MRS ek^ɣ 'fish'   d. PMC *ale > MRS al^j 'song'
        b. PMC *ira > MRS er^ɣ 'they, ABS'   e. PMC *oro > MRS or^ɣ 'be, there is'
        c. PMC *ate > MRS at^j 'liver'   f. PMC *ura > MRS or^ɣ 'lobster'

In (3) we have a few examples of MRS words with initial vowels that do not correspond to the consonantal secondary place of articulation. In (a-b) we have front vowels next to velarized consonants, in (c-d) we have back vowels preceding palatalized consonants, and in (e-f) we have round vowels preceding unrounded consonants. The Proto-Micronesian (PMC) reconstructions show that in (a-b) there was a front vowel with a [I] element and when the final vowel dropped, the [A] element that it contained was associated with the initial vowel yielding the combination [A, I] = e. In (e-f) we have the same process. However in (c-d) we notice that the final vowel of PMC which contains [I] gives the preceding consonants a palatalized articulation but the [I] does not spread further to the initial vowel: where we would expect [e] we get [a] instead. This demonstrates that there are no semi-glides but rather elements that were already part of that skeletal position. What remains to be explained is why the [I] of palatalized consonants does not spread to the preceding vowel.

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