

How does Vowel Harmony Develop? Evidence from Behoa, a language of Indonesia

Recent work in linguistics indicates a renewal of interest in diachronic explanations for synchronic language phenomena (see Anderson 2016). This paper concerns the diachronic origins of vowel harmony (VH) and explores two questions put forward in Hyman (2002) that have yet to be adequately answered: (1) Where does VH come from? and (2) What other factors enhance or impede its development?

To bear on these questions, I present evidence from Behoa (Austronesian; Sulawesi, Indonesia), showing that VH developed through phonologization of earlier vowel allophony which was enhanced through vowel-to-vowel coarticulation. This study represents new descriptive work on VH in a lesser-known language and contributes to the relatively small body of research on the diachrony of VH.

Behoa contrasts two low vowel phonemes differing in backness, /a/ and /ɑ/. These vowels obey co-occurrence restrictions within roots (with some exceptions), and participate in allomorphic alternations for suffixes. This limited system of VH is an innovation; VH is not known to have been present in Proto-Malayo-Polynesian (PMP), nor Proto-South-Sulawesi.

Using the historical-comparative method, I show that the phoneme /ɑ/ in Behoa originates from vowel allophony in the final syllable, triggered by back consonants in the coda. When coda consonants were later reduced or lost (as in the vast majority of Sulawesi languages), /ɑ/ came to contrast with /a/ as the result of a conditioned split. Proto-Seko, which

Table 1: Conditioning of /ɑ/ in Behoa

*-C	PMP	Pre-Behoa	Behoa	Gloss
*-m	*najam	*naj[a]ŋ	nara	'tame, domesticated'
*-n	*bulan	*bul[a]ŋ	βula	'moon, month'
*-ŋ	*balan	*bal[a]ŋ	bala	'scar'
*-l	*kabal (WPMP)	*kab[a]ŋ	kaba	'thick'
*-R	*bulaR	*bul[a]R	bula	'white'
*-k	*anak	*an[a]k	ana?	'child'

subgroups with Badaic (including Behoa), provides evidence for velarization of nasal codas and *l (through *n) as in PMP *enem 'six' > Psek *unuŋ, PMP *quzan 'rain' > Psek *uran, PMP *gatel 'itch' > Psek *katiŋ (Laskowske 2006).

Roots inherited in Behoa from PMP would have been up to 90% disyllabic (Blust 2007). In Behoa roots where PMP *a is reflected as /ɑ/ in the final syllable, *a > /ɑ/ is also found in the penultimate. Inversely, where PMP *a is reflected as /a/ in the final, *a > /a/ is also the pattern in the penultimate. I argue that V-to-V coarticulation is the most likely mechanism for this development, and that Behoa confirms Ohala's (1994) claim that V-to-V coarticulation is the phonetic precursor of VH.

Table 2: Low vowel agreement in disyllabic Behoa roots

PMP	Behoa	Gloss	PMP	Behoa	Gloss
*najam	naja	'tame'	*mata	mata	'eye'
*daqan	da?a	'branch'	*paqa	pa?a	'thigh'
*bataŋ	wata	'body'	*sayat	haa?	'slice thickly'
*kapal (WPMP)	kapa	'insensitive'	*panas	pana	'stinging'
*pakpak	papa?	'flap (wings)'	*mamaq	mama?	'betelnut'

V-to-V coarticulation alone, however, cannot explain the specific steps of phonologization seen in Behoa. I suggest that other morphological, lexical, and prosodic factors favored the rise of VH in Behoa, including the shape and stress patterns of roots and suffixes, and the contrastive load of low vowel phonemes.

To conclude, I present cross-linguistic examples of vowel phenomena which show similar steps of development with Behoa VH. In these cases, development of more extensive VH was blocked by one or more factors. Thus, from a diachronic perspective, I suggest that Behoa VH is an extension of the processes active in metaphony and allomorphic alternation, which have similar origin. Whether this holds for all types of VH is unclear. More research is needed to identify the pathways by which VH can develop, their relative frequency of occurrence, and their relationship to typological properties of VH systems such as directionality and domain.