

Phonological Idiosyncrasy as Contrastive Gestural Strength

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Phonological idiosyncrasy, or exceptionality, refers to a situation in which two versions of the same sound participate in phonological processes in different ways. This is exemplified by Bemba (Bantu; Zambia; Hyman 1994, 1995, Zoll 1995, Kula 2002), in which historical change from Proto-Bantu has created two sets of high vowels /i/ and /u/.

- (1) Phonetic merger of ‘superclose’ and high vowels from Proto-Bantu to Bemba

<u>Proto-Bantu (reconstructed)</u>			<u>Bemba</u>	
ɨ	ɥ		i	u
i	u	→		
e	o		e	o
	a			a

The ‘superclose’ vowels *ɨ and *ɥ have phonetically merged with the high vowels *i and *u in the development of modern Bemba from Proto-Bantu. However, the two series of high vowels still exhibit distinct phonological patterning. Forms containing /u/ < *ɥ exhibit only static distributional patterns as opposed to active alternations, and often involve morphologically frozen forms. However, the distinction between /i/ < *i and /i/ < *ɨ is still synchronically active and involves alternating forms. I focus here on two phonological processes in Bemba that illustrate this: vowel height harmony and consonant mutation.

Bemba exhibits vowel height harmony (common throughout the Bantu language family), in which high suffix vowels lower to mid following mid root vowels (though note that /u/ only lowers to [o] after [o]).

- (2) Height harmony affecting applicative [-il-]~[-el-]

- [fit-il-a] ‘buy (appl.)’
- [ful-il-a] ‘forge (appl.)’
- [sek-el-a] ‘laugh at (appl.)’
- [sos-el-a] ‘speak (appl.)’
- [kak-il-a] ‘tie (appl.)’

- (3) Height harmony affecting reversive/separative [-ul-]~[-ol-]

- [fimb-ul-a] ‘uncover’
- [put-ul-a] ‘cut’
- [sel-ul-a] ‘knock over’
- [kont-ol-a] ‘break (trans.)’
- [aŋg-ul-a] ‘peel’

However, high vowels that are reflexes of the Proto-Bantu superclose vowels resist this lowering harmony. In addition, this data also illustrates the process of consonant mutation, by which non-nasal consonants surface as [ʃ] before /i/ < *ɨ.

(4) Resistance to height harmony and triggering of consonant mutation by causative /-i-/

<u>Base Form</u>	<u>Causative /-i-/ < *i</u>	<u>Passive /-w-/</u>
a. [end-a] ‘walk (intrans.)’	[enʃ-i-w-a] ‘be walked’	
b. [sel-a] ‘move (intrans.)’	[seʃ-i-w-a] ‘be moved’	
c. [kos-a] ‘be strong’	[kof-i-w-a] ‘be strengthened’	
d. [ond-a] ‘be slim’	[onʃ-i-w-a] ‘be slimmed’	

The data above show that the two /i/ vowels of Bemba, despite being phonetically indistinguishable, exhibit distinct phonological patterning: /i/ < *i undergoes height harmony while failing to trigger consonant mutation, while /i/ < *i triggers consonant mutation while failing to undergo height harmony. The question to be addressed here is: what is the nature of the contrast in Bemba between /i/ < *i and /i/ < *i? I propose that this distinction is based on the strengths with which they command vocal tract articulators. This is implemented by adopting dynamically-defined gestures as the units of phonological representation, as in Articulatory Phonology (Browman & Goldstein 1986, 1989, et seq.), and by reevaluating the role that gestural strength plays within phonology. Specifically, I claim that the high vowels of Bemba contrast in their specified gestural strength parameters.

In this gestural analysis, each segment is made up of one or more gestures, which are specified for some target articulatory state. When two concurrently active (i.e., overlapped) gestures make opposing demands of the same articulator, they enter into competition with one another. The result of such competition is a blend of the two gestures’ individual target articulatory states, determined according to the gestures’ specified blending strengths. In this blending function, the target articulatory state of a stronger gesture is favored over that of a weaker gesture, while blending gestures of equal strengths produces an intermediate blended target articulatory state. In addition to being crucial to the workings of the speech production model assumed within Articulatory Phonology, I claim that this gestural blending strength parameter also plays an active phonological role, even serving a contrastive function in languages like Bemba.

There are numerous advantages to the gestural analysis of phonological idiosyncrasy in Bemba. Such an approach recruits an independently necessary element of the speech production model assumed by gestural models of phonology and phonetics and uses it to account for a case of phonological idiosyncrasy. Gestural strength is also a non-abstract, non-opaque property of gestural representational units, eliminating the need for special grammatical mechanisms necessary for many featural analyses of phonological idiosyncrasy, including constraint indexation or feature (under-)specification. Finally, this approach straightforwardly captures the relatedness of the processes of consonant mutation and height harmony in Bemba, and the role played by the two series of high vowels in them, to a contrast in a single gestural parameter.

References

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