Word-final geminates in a Modern South Arabian language: Phonetics and Phonology

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While word-final geminates are common across Arabic dialects, they are claimed to be rather unusual in other Semitic languages. In this study we examine the status of final geminates in Mehri, an endangered Modern South Arabian language (South Semitic) spoken in the Dhofar Governorate of Oman. We show, contra to previous accounts, that these segments exist both at the phonological and phonetic levels. Evidence for phonological final geminates is drawn from their behavior relative to stress pattern. Evidence for surface phonetic geminates is drawn from acoustic analysis of different types of Mehri obstruents. The results obtained are relevant for the typology of Semitic languages and bear on the controversial issue of geminate representation.

1. General information

Except for laryngeal /ʔ/ and pharyngeal /ʕ/, each Mehri consonant has a geminate counterpart which can be either lexically given or phonologically derived. Mehri patterns in a peculiar way within Semitic with regard to geminates: contrarily to more familiar Semitic languages like Arabic, gemination has no morphological role in the verb system (Watson 2012). Phonological geminates mainly result from an assimilation process in -t- infixed forms of √C₁C₂C₃ verbs where C₂ = [+cor, + obstr] (e.g. ħá-t-ɬər → ħáɬɬər be cut). A second potential context of phonological germination, the one considered here, is that of verbs derived from √C₁C₂ in which the application of a biliteral root to a triliteral template is expected to trigger final gemination (McCarthy 1981). However, it is commonly assumed that the Mehri of Oman does not display surface geminates at the margins of the word (Johnstone 1987, Rubin 2010). We argue that word-final geminates exist in the Mehri of Oman at the phonological level and provide production data that show that they also exist phonetically.

2. Word-final geminates: Phonological patterning

The evidence for word-final geminates comes from the stress pattern in the class of biliteral verbs and how it interacts with vowel length. Specifically, we show that geminates pattern with a sequence of two consonants. Consider a representative example, the pf 3ms of √ʔɬ stand up in (1a).

The second root consonant, ɬ, is reported to be a singleton consonant, e.g. in the reference grammar by Rubin (2010). In Mehri, stressed vowels are long in light (CV) syllables and short in heavy (CVC) syllables: Mehri has a classical system of Tonic Lengthening with Closed Syllable Shortening. Unstressed vowels are always short (apparent unstressed long V always result from a process of compensatory lengthening following the loss of a coda /ʔ/, e.g. [aː] in (3a) is underlyingly /əʔ/). Additionally, vocalic quality and vowel length are correlated as shown in (2) (Johnstone 1987: xiv). In word-final position, syllables closed by a consonant (CVC#) count as light syllables (Hayes 1989). As a consequence the stressed vowel in such syllables surfaces as a short vowel, e.g. rakúːz (1e). By contrast, syllables closed by a CC-cluster (CVCC#) count as heavy syllables: stressed vowels in such syllables surface as long vowels, e.g. rakúːzk (1c).

(1) √ʔɬ stand up a. ʔə́ ɬ pf 3ms b. ʔə́ɬːt pf 3fs
√rkz straighten c. rakúːzk pf 1s d. rakúːt pf 3fs e. rakúːz pf 3ms

(2) | CV, CVC# | CV | CV, CVC# | CV |
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The fact that the stressed vowel is short in (1a) provides evidence that final /ʔ/ is not a singleton C, but a geminate, which patterns in a pair with a sequence of two consonants. Such patterning is readily accounted for by a bipositional analysis of geminates: like CC clusters, they involve 2 skeletal positions. The distinction between a single linked segment and its double linked...
counterpart is generally understood as predicting a distinction of consonant length (Clements 1986). This is what the following section sets out to examine on experimental grounds.

3. Word-final geminates: Phonetic implementation

The question examined is whether final consonants in biliteral verbs are produced as phonetically long consonants or not. The acoustic data used in this experiment, recently recorded during fieldwork in Salalah (Dhofar, Sultanate of Oman), consisted of 9 items of biliteral consonant roots having one of the following final consonants /t, t', d, 0, s, s', z, l, l'/. Each root was conjugated in isolation in four verbal forms (pf 3ms, ipf 3ms, pf 3fs, ipf 3fs) and repeated three times by five native speakers. Two examples illustrating the type of data recorded are given in (3). Final consonants in pf 3ms are compared to final single consonants in ipf 3ms and pf 3fs items. The pattern observed was then compared to singleton vs geminate contrast in medial position (i.e. ipf 3ms and ipf 3fs vs pf 3fs).

(3) Root   pf 3ms  ipf 3ms  pf 3fs  ipf 3fs
   b. √ʔl ?əl  ja:lu:l  ʔəlú:l  ta:lu:l  stand up

Data from two subjects are presented in this abstract. They consist of 324 tokens: 162 in final position (54 geminates & 108 singletons) + 162 in medial position (54 geminates & 108 singletons). Data from the three other subjects are currently under analysis. Results obtained for the subjects analyzed are illustrated in figure 1. They show that geminates are acoustically longer than their singleton counterparts. This difference is statistically significant at \( p<.001 \) for both stops and fricatives. Importantly, stops are systematically released so that the durational cue of a geminate stop is preserved in this position. The singleton/geminate contrast is shaped by word position, with final segments, be they singletons or geminates, systematically longer than their medial counterparts. This pattern, which probably accounts for the shorter ratio of geminate to singleton durations in final position, is a consequence of the widely attested phenomenon of final lengthening, which generally functions as a means of demarcating the ends of constituents (Wightman et al. 1992, Fougeron & Keating 1997).

![Figure 1. Consonant duration differences (in ms) between singletons and geminates in final and medial positions.](image)

References.


