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# On word-final geminates in the Mehri language of Oman

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, a Modern South Arabian language (South Semitic) spoken in 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

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: it mainly results from an assimilation process in -t- infixed forms of $\sqrt{C_1C_2C_3}$ verbs where $C_2$ = [+cor, + obstr] (*e.g.* ħá-**t**-**l**ər → ħá**ll**ər *be cut*). A second potential context of phonological gemination is that of verbs derived from $\sqrt{C_1C_2}$ in which the application of a biliteral root to a triliteral template is expected to trigger final gemination (McCarthy 1981). Such a gemination has been reported in certain Mehri dialects spoken in Yemen (Lonnet & Simeone-Senelle 1997, Sima 2009, Watson 2012). However, it is commonly assumed that the Mehri of Oman does not display surface geminates at the margins of the word. 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 they pattern with a sequence of two consonants. Consider a representative example, the pf 3ms of √dl *know* in (1a). The second root consonant, *l*, 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 results from a process of compensatory lengthening following the loss of a coda consonant, *e.g.* [a:] 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 long vowel: [CV́:C]#, *[CV́C]#, *e.g.* rək**ú:**z (1e). By contrast, syllables closed by a CC-cluster (CVCC#) count as heavy syllables: stressed vowels in such syllables surface as short vowels, *e.g.* rəkə́zk (1c).

(1) √dl *know* a. də́l *pf 3ms* b. dəllú:t *pf 3fs*
√rkz *straighten* c. rəkə́zk *pf 1s* d. rəkzú:t *pf 3fs* e. rəkú:z *pf 3ms*

| (2) | *CV, CVC#* | *CVC* | *CV, CVC#* | *CVC* |
|---|---|---|---|---|
| | í: | ə́ | é: | á |
| | ú: | | ó: | |

The fact that the stressed vowel is short in (1a) provides evidence that final /l/ is not a singleton C, but a geminate, which patterns in a par 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 consisted of 9 items of biliteral consonant roots having one of the following final consonants /t, t', d, θ, s, s', z, ɬ, ɬ'/. Each root was conjugated in four verbal forms (pf 3ms, ipf 3ms, pf 3fs, ipf 3fs), and produced within a carrier sentence by one native speaker. Two examples illustrating the type of data recorded are given in (3). The total data examined consisted of 216 tokens: 108 in final position (36 geminates & 72 singletons) + 108 in medial position (36 geminates & 72 singletons).

| (3) | | Root | pf 3ms | ipf 3ms | pf 3fs | ipf 3fs | |
|---|---|---|---|---|---|---|---|
| | a. | √ʔd | ʔədd | ja:dú:d | ʔəddú:t | ta:dú:d | *count* |
| | b. | √ft | fətt | jəftú:t | fəttú:t | təftú:t | *crumble* |

Data on final consonants are compared to final single consonants in ipf 3ms and ipf 3fs items. The pattern observed was then compared to singleton/geminate contrast in medial position. Results obtained are illustrated in figure 1. They show that geminates are acoustically longer than their singletons counterparts. This difference is statistically significant at $p<.01$ for both stops and fricatives. Importantly, at least in the production of the subject recorded, 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).

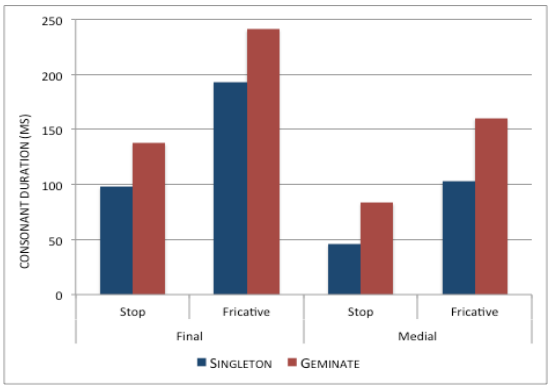


**Figure 1.** Consonant duration differences (in ms) between singletons and geminates in final and medial positions.

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