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A detective story: emphatics in Mehri

JANET C.E. WATSON & ALEX BELLEM

Summary

Until 1970, Ethio-Semitic was believed to be the only Semitic language sub-family in which the main correlate of “emphasis” is glottalization, a feature said at the time to be due to Cushitic influence. Since the work of T.M. Johnstone, however, it has been argued that glottalization is a South Semitic feature, attested not only in Ethio-Semitic, but also in the Modern South Arabian languages. Two statements in the literature on Modern South Arabian, however, suggested to us that the original evidence needed to be re-investigated: first, some of the “ejectives” are described as at least partially voiced, not a phonetic impossibility, but so far unheard of in the phonological system of any language; and secondly, the degree of glottalization is frequently described as dependent on the phonological environment, although details of the environment in which emphatics are always realized as ejectives are not given. In this paper, we consider acoustic data from Mahriyōt (a Mehri dialect spoken in the easternmost province of Yemen), we examine descriptions of emphatics in other dialects of Mehri and other Modern South Arabian languages, we look at phonological environments in which emphatics are realized as ejectives and those in which they are not, and we conclude that the file on emphasis in these languages needs to be re-opened to fresh judgement.

Keywords: Modern South Arabian, Mehri, emphasis, phonetics, phonology

1. Introduction

Until 1970, Ethio-Semitic was believed to be the only Semitic language sub-family in which the emphatic consonants are predominantly glottalic pressure consonants, i.e. ejectives, a feature said at the time to be due to Cushitic influence. Since the work of T.M. Johnstone, however, it has been argued that glottalic pressure is a South Semitic feature, attested not only in Ethio-Semitic, but also in the Modern South Arabian languages.

There were, however, two statements in the literature that attracted our attention: first, some of the “ejectives” are said to be at least partially voiced, not a phonetic impossibility, but so far unheard of in the phonological system of any language; and secondly, the degree of glottalization is sometimes described as dependent on the phonological environment (e.g. Simeone-Senelle 1997: 382), although details of the environment in which emphatics are always realized as ejectives are not given.

Our data come from Mahriyōt, a dialect of the Modern South Arabian language Mehri, spoken in the Sharqiyyah province of Yemen bordering Oman. Watson had initially worked on pre-pausal phenomena in this dialect with the late Alexander Sima. She then conducted fieldwork in

al-Ghayḍah between January and March 2008, working with Askari Saad Hujayran and his extended family. Askari had moved to al-Ghayḍah from Sharqiyyah with his immediate family nine years previously, and has since been joined by members of his extended family. Since summer 2008, Watson has been working with Bellem on the phonetics and phonology of Mehri emphatics.

In this paper, we begin by presenting the consonantal inventory of Mahriyōt. We then briefly consider the phonological patterning of the emphatics, which in Mehri pattern on the one hand with voiced consonants and on the other with pharyngeals and uvulars. We then consider the history of work on the emphatic system in Modern South Arabian in general, and in Mehri in particular. This section is followed by an acoustic analysis of Watson’s data, which shows that only one of the emphatics is realized in all syllabic positions as an ejective. Although this study is based on data from a single dialect region, written descriptions and our initial listenings to archived Modern South Arabian sound files indicate that the phonetic correlates of emphasis in Mehri in general have been misanalysed, a fact due partly to the assumption that all emphatics share a single main correlate of emphasis, and partly to a failure to recognize the importance of the phonological environment.

		<i>labial</i>	<i>dental</i>	<i>alveolar</i>	<i>palato- alveolar</i>	<i>palatal</i>	<i>velar</i>	<i>uvular</i>	<i>pharyngeal</i>	<i>glottal</i>
PLOSIVE	voiced	b		d						
	voiceless			t			k			ʔ
	emphatic			ṭ			ḳ			
	affricate				j					
FRICATIVE	voiced		ḍ	z			ḡ	ʕ		
	voiceless	f	ṯ	s	š		x	ħ		h
	emphatic		ṯ	ṣ	č					
LATERAL	voiced			l						
	voiceless				š					
	emphatic				ž					
	nasal	m		n						
	rhotic			r						
	glide					y	w			

FIGURE 1. *The consonantal inventory of Mahriyōt.*

2. Consonants

The consonantal inventory of Mahriyōt is given above. The transcription system adopted is that used in Sima (2009). The emphatics, and the pharyngeal fricative /ħ/, are transcribed with subscript dots. There is another emphatic, /ž/, the counterpart of the voiceless lateral /š/.¹

3. Patterning of emphatics with voiced consonants

Gemination of root-initial consonants affects obstruents that are neither phonologically voiced nor fall into the set of emphatics: /ḳ/, /š/, /t/, /č/, /ž/ (but not /ṭ/). Thus, certain particles may geminate nominal-initial voiceless consonants for pragmatic or stylistic emphasis. These

¹ /ž/ is transcribed as such by Johnstone (1975) and Lonnet (2009), but phonologically more accurately as š by Simeone-Senelle (e.g. 1997).

include *w-* of focus, *la-*, *k-*, *ḍ-* and, occasionally *b-*.² Examples from the texts include: *ka-ššētu* “in winter”, *šahnāt ḍa-sšiyaryat* “the load of the car”, *ba-ħħays* “with energy”, *ba-ffaḥmah* “with his foot”, *ka-xxarf* “in the monsoon period”, *ka-ṭṭuhr* “at noon”, *wa-xxadyūt* “and the *xadyūt* [fish type]”, *wa-ħħāxār* “and the old man”, *wa-ttiwyah* “and its meat”. Gemination appears to be a remnant of the definite article, which no longer has a phonological exponent in this dialect.³ Of the voiceless consonants subject to gemination, a larger percentage of the tokens of /ħ/ fail to be geminated than, for example, /k/, /t/, /x/, /f/, /s/, /š/ or /ž/.⁴

² The affricate, originally *g*, as it is in other dialects of Mehri, forms a phonological voiced — voiceless — emphatic triad with /ḳ/ and /ḳ/.

³ In comparison to the Mehri of Oman where definite nominals beginning with non-voiceless (voiced or emphatic) consonants take initial *a-* (Johnstone 1970; 1987: xiii; cf. Simeone-Senelle 1997: 412; Sima 2002).

⁴ Gemination of one of the voiceless coronal consonants following *ḍ-*

In a number of verb types, including the intensive-conative⁵ verb, *afōʕal*, and the basic quadrilateral verb, a root-initial voiceless non-emphatic consonant is geminated in the inflected verb and in the participles, as in: *affōkar* “to think”, participle m.s. *maffakrā*, *attōfaḡ* “to wash one’s face with water”, participle m.s. *mattafḡā*, *aḥḥōḍar* “to be embarrassed”, participle m.s. *mahḥadīrōna*, *aššarḡāʕ* “to take a large step”, *attartūr* “to take something violently”, *aššarxūf* “to take/put sth. down”; in h-stem verbs, /h/ is often deleted. Omission of *h-* is usually accompanied by gemination of the initial root consonant, where this latter is voiceless. Examples include:

<i>aššanūh</i> ~ <i>hašnūh</i>	“he showed”
<i>axxanūf</i> ~ <i>haxnūf</i>	“he took out”
<i>axxalūf</i> ~ <i>haxlūf</i>	“he left behind”
<i>attamūm</i> ~ <i>hatmūm</i>	“he finished”

By contrast, initial emphatic and voiced root consonants remain ungeminated in all these verb forms, as in: *ajōrab* “to try”, *awōḍan* “to make the call to prayer”, participle m.s. *mawidnōna*, *ašōfi* “to cleanse”, *aḡūnūm* “to gather green fodder”, *aḡaḡiūk* “to clatter”, *adaḡdāḡ* “to tickle”, *abartūm* “to amuse o.s.”.

In dialects in which a vestige of the definite article remains (the Mehri of Oman), the article *a-* is realized before voiced consonants and emphatics, but not before voiceless consonants, as in the following examples from Johnstone (1975: 98):

<i>a-ḡe:d</i>	“the skin”
<i>a-ḡa:b</i>	“the heart”
<i>kawb</i>	“a/the wolf”

In these dialects, /a/ is prefixed to the intensive-conative verbal pattern before voiced consonants and emphatics, but not before voiceless consonants, as in the following examples from Johnstone (1975: 99):

<i>ago:rəb</i>	“to try”
<i>aḡo:bəl</i>	“to point at”
<i>ko:rəm</i>	“to be generous”

rules out the otherwise common progressive assimilation of the particle *ḡ-* to a following coronal obstruent (e.g. Sima 2005: 6, 11, 16), as in: *aš-šāʕjūl* < *š-šaʕjūl < *ḡ-šaʕjūl “he who hurries” (2005: 14) and *as-sābōt* < *s-sbōt < *ḡ-šbōt “he who hits” (2005: 16).

⁵ Terminology adopted from Johnstone (1975: 98).

4. Patterning of emphatics with pharyngeals and uvulars

The emphatics pattern with the pharyngeals and the uvulars in terms of the vowel allophones they attract. Thus, in Mahriyōt *ay* and *aw* may occur to the exclusion of *ī* and *ū* after the emphatics, pharyngeals and uvulars.⁶ Examples from Watson’s data include: *baḥḡays* “with energy”, *ḡayṭ* “hot/pre-monsoon period”, *ḡayd* “sardines”, *ḡaylūj* “camel calf”, *ḡayḍān* “ear”, *ḡays* “sorghum”, *ḡamzawt* “yoghurt dish”, *mḡawḡat* “jewellery shop”, *ḡayjaʕ* “hut”. The diphthong also may be separated from the trigger by another consonant, as in *šaṭrayr* “cloth” and *šaḡṭayt* “three”. The feminine nominal, adjectival, and numeral ending *-īt* is realized as *-ayt* in the following words:

<i>ḡarḡayt</i>	“smell under the armpits” (cf. <i>šabdīt</i> “liver”)
<i>bīzayt</i>	“egg” (cf. <i>rēšīt</i> “snake”)
<i>habḡayt</i>	“seven” (cf. <i>tamnīt</i> “eight”)
<i>ḡalḡayt</i>	“fat (f.s.)” (cf. <i>xaṭmīt</i> “thin [f.s.]”)

Less commonly, the feminine nominal and 3 f.s. perfect verbal ending *-ōt* is realized as *-awt* in the environment of gutturals:

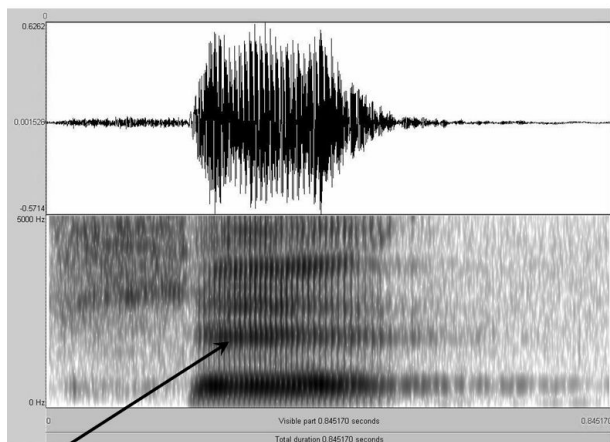
<i>malḡawt</i>	“salt; salt water” (also <i>malḡōt</i>)
<i>wasḡawt</i>	“it (f.) held” (cf. <i>barwōt</i> “she gave birth”)

No examples of /t/ followed by a diphthong are attested in Watson’s data; at this stage, it is not certain whether this is because diphthongization does not occur in the environment of /t/ or whether the database is too small — /t/ occurs rarely, and the only possible examples in the texts are *aṭ-tīr* + pronoun suffix, such as *aṭ-tīras* “on it (f.)”, and *tīrōb* “sticks”, and in this latter case /ī/ does not fall in a stressed syllable.

The low vowel /a/ is realized as a low central-ish vowel [a] in the environment of emphatics, pharyngeals, and uvulars; long /ā/ is realized as low central-ish [a:] after emphatics, pharyngeals, and uvulars. By contrast, where the context does not contain a backing consonant (emphatic, pharyngeal, or uvular), this vowel is fronted and raised ([ɛ]/[ɛ:]).⁷ Compare the height of the second

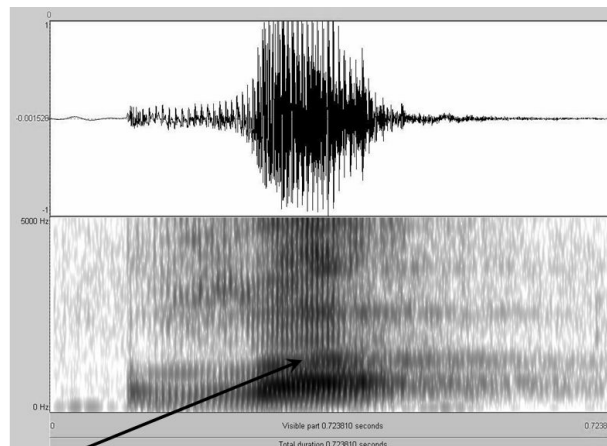
⁶ In Omani Mehri, this appears to be invariably the case (cf. Johnstone 1987: xiii).

⁷ In the literature on Modern South Arabian languages (MSAL), there



F2

FIGURE 2. Spectrogram and waveform of a token of *šā* [ʃɛ:] (name of the letter *š*) — the spectrogram shows comparatively higher F2 of the low vowel *ā*, which is raised to [ɛ:] in this (non-backing) environment; the speaker of all the data used for this paper is an adult male from *Hawf*, in the province of *Mahra*.



F2

FIGURE 3. Spectrogram and waveform of a token of *zā* [ʒa:] (name of the letter *z*) — the spectrogram shows comparatively lower F2 of the low vowel *ā*, which is realized as low central-ish [a:] in this (backing) environment.

formant, F2, in the names of the palato-alveolar lateral fricative *šā*⁸ and its emphatic counterpart *zā* in the spectrograms in Figures 2 and 3, above.

Thus, with few exceptions, the nominal feminine ending /ā/ is realized as *-āt* after emphatics, pharyngeals, or uvulars, as in *kaššāt* “story”, *mṭarḳāt* “hammer”, *šafḥāt* “hinge”; as *-āt* after nasals, as in *raḥmāt* “rain”, *ʕadmāt* “lack of means”, *snāt* “year”, *maḥnāt* “problem”, *mḳalmāt* “pruning shears”; and as *-ēt* in all other environments, as in: *barzēt* “small hole at back of boat to let water out”, *raḥbēt* “village; town”, *mbaxrēt* “iron frame for incensing clothes”, *xabzēt* “piece of bread”, *ḳāsrēt* “naughtiness”.

5. The description of the emphatics in Mehri

In works based on the fieldwork of the Viennese expedition in the early twentieth century (e.g. Jahn 1902; Müller 1909; Bittner 1909) and of Bertram Thomas (Thomas 1937; Leslau 1947), emphasis in Modern South Arabian appears to be considered similar to, but also less salient than, emphasis in Arabic. Thomas (1937: 14), for example, describes the differences in the respective

is no clear consensus on vowel inventories. However, in Mahriyōt, the vowel often transcribed as “ē” seems pretty clearly to be the raised and fronted variant of /ā/ (i.e. “ā” and “ē” are in complementary distribution: “ē” appears in non-guttural environments, and is thus an allophone).

⁸ Described by Watson’s informant as *aš-šin al-jānibiyah* “the lateral *šin*”.

sound values of the pairs *q* and *k*; *g* and *ḡ* and the triads *t*, *ṭ*, and *d*; *s*, *ṣ*, and *z* as “not unmistakably evident to the listener like their familiar Arabic equivalents”. This lack of unmistakability is evident in the (inconsistent) transcription of the Viennese expedition; thus Hein (edited by Müller 1909) transcribes /ḳ/ in his Mehri texts as *g*, as in *ḡalgōt* “she saw” for *ḡalkōt*, and occasionally as *k*, as in *tekefōd* “she goes down” (1909: 1), but *ugofōd* “and he went down” (1909: 6); he frequently transcribes /ṣ/ as voiced *z*, as in *zōṭer* “basket” for *šōṭar* and *zayd* “fish” for *šayd*, but also as *ṣ* and *s*, particularly in the word for “morning”, as in *ḳšōbah* and *hesōbah* “am Morgen” (1909: 3). It is not until literature based on the fieldwork of Johnstone and Lonnet and Simeone-Senelle that emphasis in Mehri is described as (post-)glottalization (Johnstone 1975; 1987; Simeone-Senelle 1997: 382–383). These descriptions are accompanied by the proviso, by Johnstone, that the strength of the glottalic release in Modern South Arabian as a whole is less than that in the Ethio-Semitic languages (e.g. Amharic, Johnstone 1975: 98), and that the degree of glottalization varies according to phonological context and dialect (e.g. Simeone-Senelle 1997: 382): glottalization in some Soqotri dialects is described as “weaker” (1997: 382), and for the western Mehri dialect of Qishn, glottal closure is said to be incomplete, provoking “a laryngealization or creaky voice” (1997: 382; see also Lonnet & Simeone-Senelle 1983; 1997).

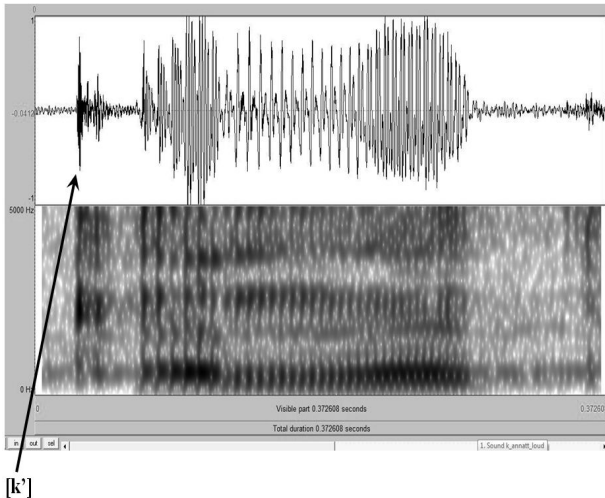


FIGURE 4. Spectrogram and waveform showing the sharp “spike” typical of glottalic initiation in the (ejective) emphatic $ḳ$ in this token of γ annatt [kʰanːətʰː] “small (f.s.)”.

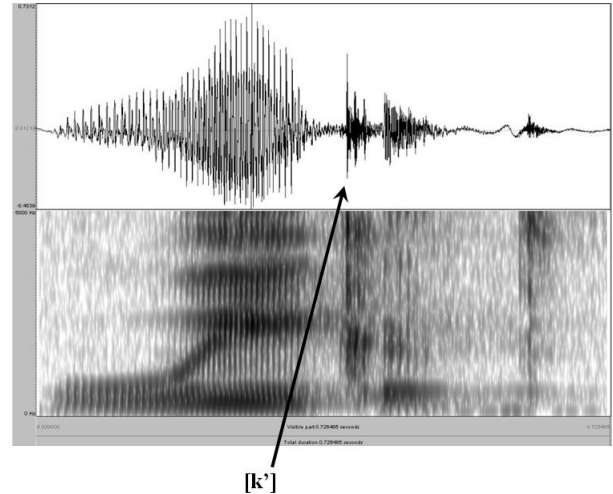


FIGURE 5. Spectrogram and waveform showing the sharp “spike” typical of glottalic initiation in the (ejective) emphatic $ḳ$ in this token of w -wīkad [w wi:kʰatʰ] “and wīkad (a type of fish)”; the final d is prepausal and thus also devoiced and ejective.

For some dialects of the languages, glottalization is said to be increasingly restricted to a sub-set of the emphatics (Lonnet 2009). Significantly, Johnstone and Simeone-Senelle and Lonnet describe some of the “ejective” emphatics as at least partially voiced.

6. The phonetic correlates of the emphatic feature in Mahriyōt

In the field, Watson was aware of ejective articulations invariably only in the case of /ḳ/. Furthermore, any attempts on Watson’s part to produce ejective tokens of the other emphatics in any position other than pre-pausal were rejected by her informants. Acoustic analysis later confirmed that /ḳ/ was the only consonant to exhibit in waveforms the spike typical of glottalic pressure consonants in all phonological environments. This is seen in initial position in the waveform for the word γ annatt “small (f.s.)”, and in medial position in the word w -wīkad “and wīkad (type of fish)” (Figs 4 & 5).

By contrast, no spike is visible on waveforms of tokens of any other emphatic in non-pre-pausal position. This is exemplified below in [ṣ] in γ wārāb “harvest period [diminutive]” (Fig. 6), in [č̣] in čačrīr “back of the neck” (Fig. 7), in [ṭ] in tayr “bird” (Fig. 8), or in [ẓ] in zā (sound name) (Fig. 9). (The arrows on the waveforms indicate the onset of [ṭ] and the mid-positions of [ṣ], [č̣], and [ẓ].)

However, the phonemes /ṣ/, /č̣/, /ṭ/, /ẓ/ and (less so) /ṭ/

as we have seen, pattern with /ḳ/ phonologically in that they have a “backing” effect on surrounding vowels (seen spectrographically in a lowered second formant), tend to take diphthong allophones of /i/ and /o/, and fail to geminate after geminating particles or as the initial root consonant of certain verb patterns. The question is therefore: what are the correlates of “emphasis” in these cases?

Watson’s main informant describes the two dorsal emphatic stops — /ḳ/ and /č̣/ — in terms of combinations of articulations: /ḳ/ plus γ ayn for /ḳ/, and the “heavy Egyptian $j\bar{i}m$ ” plus γ ayn for /č̣/, suggesting an awareness of a similar phonological element in both these sounds. The reference to Egyptian $j\bar{i}m$ probably reflects the retracted place of articulation in comparison to /š/. The heaviness and γ ayn element associated with /č̣/ is most probably tongue retraction/pharyngealization. In men’s speech in particular, creak accompanies some tokens of /č̣/, which may be nevertheless totally or predominantly voiceless. Acoustic analysis carried out by Barry Heselwood (personal communication) showed tokens of initial /č̣/ to be similar to the devoiced voiced affricates of English and Persian — no voice during the closure period, but no aspiration after the frication and shorter frication than usually found in phonemically voiceless affricates. In intervocalic position, /č̣/ often lacks the initial occlusive element and is realized as a partially or fully voiced pharyngealized palato-alveolar fricative, as in ačōbaʕ “fingers”, realized as ačōbaʕ, in

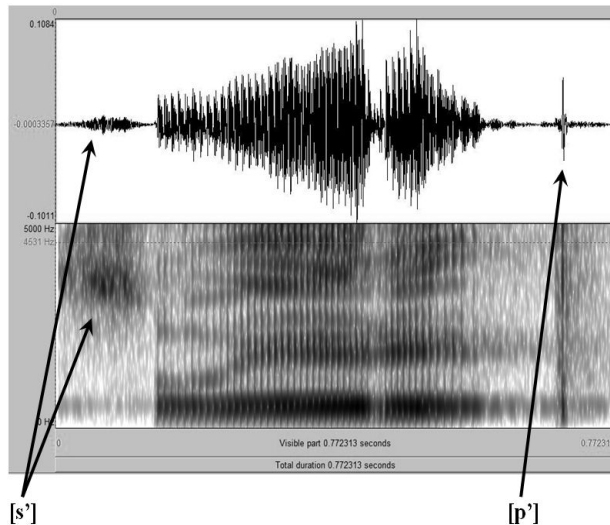


FIGURE 6. Spectrogram and waveform showing that the emphatic *s* of *šwārāb* [ʃwæ:ɾɛ:pʔ] “harvest period (diminutive)” is not ejective; in this token, the final *b* is prepausal and thus devoiced and produced on a glottalic airstream — the sharp spike is visible on the waveform.

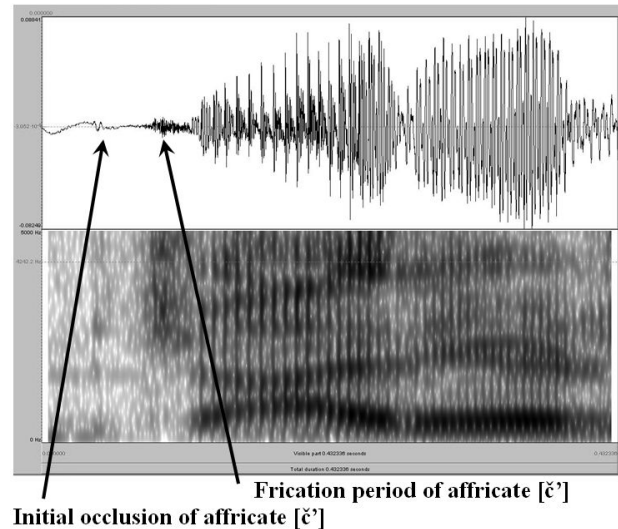


FIGURE 7. Spectrogram and waveform showing that the emphatic *č* of *čašrīr* [tʃaʃri:r] “back of the neck” is not ejective (note, however, that it is an affricate in this position, cf. FIGURE 10 below).

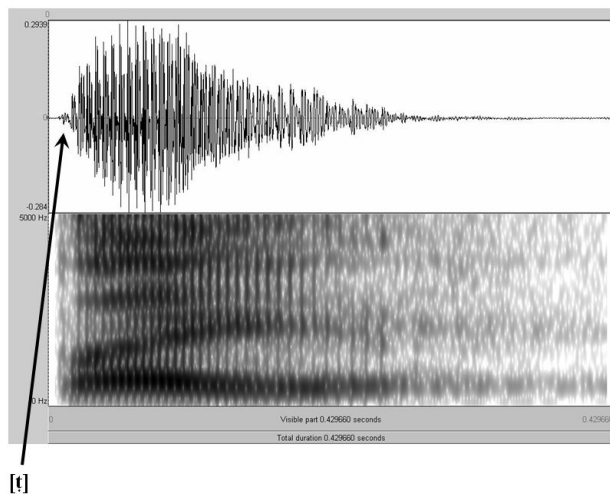


FIGURE 8. Spectrogram and waveform showing that the emphatic *t* of *tājir* [tɑjɾ] “bird” is not ejective.

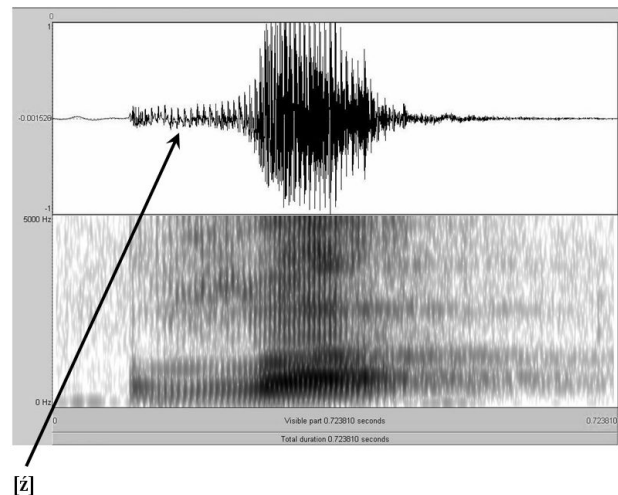
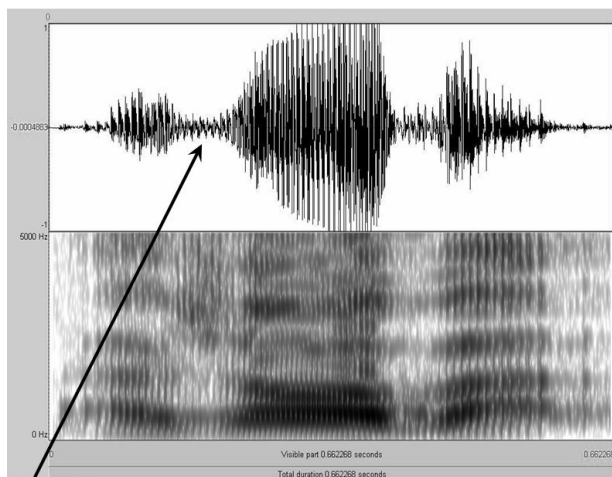


FIGURE 9. Spectrogram and waveform showing that the emphatic *z* of *zā* [zɑ:] (name of the letter *z*) is not ejective.

the spectrogram in Figure 10. (The arrow indicates the mid-position of /č/.)

The emphatic sibilant /s/ is most often considerably more voiced than the typical Arabic *šād*, with tokens varying from predominantly voiced to, less commonly, fully unvoiced. The onset of word-initial /s/, however, tends to be voiceless and sharply sibilant. Johnstone

describes /s/ in the Mehri of Oman as partially voiced (1987: xiii); in his article on Modern South Arabian, he claims that on account of the voicing of “glottalized consonants”, “[n]ative speakers seem to have difficulty on occasions in distinguishing between ... the contrasting pair *s*’/z...” (1975: 98). Indeed, as we have seen above, in Hein’s texts from Qishn there often appears to be



[č]

FIGURE 10. Spectrogram and waveform of a token of ačōbaŕ [ačō:baŕ] “fingers” showing that č is both voiced and continuant (no initial occlusion).

confusion between /z/ and /s/, such that *zayd* is given for what in Mahriyōt would be *šayd* “fish” (e.g. Müller 1909: 185). However, /s/ exhibits considerably more tenseness in both Omani Mehri (Johnstone 1987) and in Mahriyōt than /z/, a tenseness which is probably due to tongue retraction/pharyngealization or laryngealization, and no confusion between the two sounds was evident among Watson’s informants.

For Omani Mehri /t̤/ has been described by Johnstone as glottalized; Watson’s impressions in the field agreed with those of her informants that /t̤/ was most often pharyngealized rather than glottalized⁹ — informants described this sound as “the same as” or “like” Arabic /t̤/. Apart from the pre-pausal examples, none of the spectrograms of /t̤/ examined both by us and by Heselwood exhibited the spike indicative of glottalic release. One main distinction between /t̤/ and /t/ in Mahriyōt appears to be the lack of aspiration in the former, a distinction also noted by several researchers independently for some (but not all) Arabic dialects (Khattab, Al-Tamimi & Heselwood 2006; Bellem 2007).

The lateral fricative /z̤/¹⁰ is, like /č/, slightly affricated in word-initial and word-final position,¹¹ at least partially voiced — as compared with the fully voiceless lateral

⁹ Significantly, /t̤/ is not grouped by Askari with the five consonants that are either not attested in Arabic, or that differ perceptually from similar sounds in Arabic.

¹⁰ Transcribed by Simeone-Senelle (1997: 382) as *š*.

¹¹ Women are more likely to produce affricated, voiceless tokens of /z̤/ than men.

fricative /s/ — and lowers the formants of surrounding vowels, suggesting that a combination of affrication and pharyngeal contraction are the correlates of emphasis in this case. Impressionistic and acoustic analyses also suggest it has a retracted, pre-velar, place of articulation, with the tongue making contact with the back molars. The relative saliency of the affrication is still unclear, since both affricated and non-affricated tokens are attested. In isolated dialects of Arabic spoken either side of the Saudi–Yemeni border, affrication or abfrication is a correlate of emphasis in the sibilant emphatics, as in the (plain–emphatic) /s/–/st/ opposition in Faiḫi dialect (Yahya Asiri, personal communication) and Minabbih dialect (Behnstedt 1987), and in Jabal Rāziḫ where a lateralized palato-alveolar affricate is the emphatic counterpart of a slightly lateralized palato-alveolar fricative (Watson *et al.* 2006).¹²

The emphatic interdental fricative is transcribed here, as in Sima (2009), as /t̤/. It is a more appropriate symbol than /č̤/: /t̤/ is similar in place and manner to the voiced interdental pharyngealized /d̤/ of many Yemeni Arabic dialects, but exhibits substantially less voicing; Johnstone describes what he transcribes as /d̤/ as “partially voiceless” for Omani Mehri (1987: xiii). Phonologically /t̤/ behaves like the other emphatics insofar as it attracts a low central-ish allophone of /a/ and /ā/ ([a] and [a:]). Alone of the emphatics, however, it patterns with the voiceless consonants in its tendency to geminate after geminating particles (see above), and, from the data available, appears to pattern with non-emphatics insofar as it does not induce diphthongization of /ī/ or /ō/.

Voicing is phonologically immaterial in the emphatics, and although /k̤/, by virtue of being released on a glottalic airstream, is invariably produced without any vocal fold activity, the remaining emphatics exhibit variable degrees of voicing, with the more voiced tokens particularly evident in intervocalic position. On this point the data from Mahriyōt agree with that discussed by Johnstone, Simeone-Senelle, and Simeone-Senelle and Lonnet. In all cases, the emphatics lack aspiration (hence lack any significant voicing lag), and thus contrast on the one hand with voiced counterparts in which voicing is evident throughout, and on the other hand with voiceless counterparts in which there is significant voicing lag and aspiration after release (see Bellem 2007). Since, as we have seen, the emphatic consonants in all three main dialect groups of Mehri pattern in various environments with the voiced rather than the voiceless obstruents, one of the main distinctions between the emphatics and the

¹² See also Steiner (1982) on the affricated *šāde* in Semitic.

voiceless obstruents appears to be the phonologized voicing lag associated with aspiration. The lowering of formants of surrounding vowels suggests a degree of tongue retraction and pharyngeal contraction, placing the emphatics together with pharyngeals and uvulars in a class that we describe here for convenience as “guttural”.¹³

7. Conclusion

In Mahriyōt, the articulatory correlates of emphasis differ according to the primary place and the manner of articulation of the consonant concerned. The main correlates of emphasis are glottalic initiation in the case of /k/, and tongue retraction and pharyngeal contraction in the case of /t/ and the continuant emphatics. Affrication appears to be a contributory or enhancing feature in the case of the sibilant emphatics /č/ and /ž/, but not in the case of /š/.

This paper is based on the impressionistic and acoustic analysis of data from one dialect of Mehri; however, descriptions of the emphatics in the literature and preliminary auditory and acoustic analysis of recordings from Jibbali (in Oman) and Soqotri by Bellem suggest that Mahriyōt is not unique in exhibiting differing articulatory correlates of emphasis. The key lies in descriptions of the non-plosive emphatics in the Modern South Arabian languages as at least partially voiced. These descriptions are supported by the transcriptions of the Viennese expedition at the beginning of the twentieth century. Voiced ejectives may be physiologically possible (Laver 1994: 369); however, due to the difficulty in acquiring the required pressure differential to cause vibration of the upward-moving glottis, they are not used contrastively in any known language (Ladefoged & Maddieson 1996: 79–80). In the one language for which a voiced ejective has been reported, Zhul’hōasi, the sound in question has been found to be *pre-voiced* (Maddieson 1984: 216, based on Snyman 1970, 1975). It is highly doubtful, therefore, that the voiced or partially voiced allophones of the emphatics are ejective in any dialect of Mehri.

The description of emphatic consonants as invariably ejective in the literature on Mehri is due, we believe, to two combined reasons. First, the influence of the phonological environment on the phonetic realization of segments has not always been fully recognized. In pre-pausal position, all consonants are realized without voice (final devoicing

in Modern South Arabian was already observed by Leslau [1947] on the basis of Bertram Thomas’s material), and all voiced consonants (including sonorants) may be pre-glottalized particularly, but not exclusively, following a long vowel, as in: *syōr* > *syōʾr*. # “he went”, *mōnaġ* > *mōnaʾx#* (place name), *b-ḥāwēl* > *b-ḥāwēʾl* # “firstly” (cf. Simeone-Senelle 1997: 385; Watson & Asiri 2007).¹⁴ In this position, phonologically voiceless consonants are heavily aspirated, while phonologically non-voiceless non-continuant obstruents (i.e. emphatic stops and voiced obstruent stops) are frequently released on a glottalic airstream, with neutralization of the distinction between emphatics and their plain voiced counterparts, but maintenance of the distinction between emphatics and voiced stops, on the one hand, and voiceless stops, on the other: *ġayj* > *ġayčʾ#* “man”, *yanhōč* > *yanhōčʾ#* “he shouts to s.o.”, *tād* > *tātʾ#* “one”, *šīwōt* > *šīwōtʾ* “fire”, *šwārāb* > *šwārāpʾ#* “harvest period [diminutive]” (see Fig. 6), but *šīt* > *šītʰ#* “genitals” and *yāškūk* > *yāškūkʰ#* “he closes”.

The perception of ejective emphatics in one position (i.e. pre-pausal) combined with the fact that one of the emphatics — /k/ — is released on a glottalic airstream in all phonological environments presumably then led researchers to the assumption that emphatics as a class were ejectives. This second part of the equation appears to be based on an (unwritten) belief that all emphatic consonants within a language share one main articulatory correlate. In this case, if /k/ is indubitably an ejective, then the other emphatics must be too. In many cases this is so, as in the ejective emphatics in Amharic and Tigrinya and the pharyngealized emphatics in the majority of non-peripheral Arabic dialects. However, this is not necessarily the case, and Mehri is not unique in exhibiting differing articulatory correlates of emphatics. A few dialects of Arabic, including Yemeni Zabīd (Naīm 2008), ilXarga (Kharga) in Middle Egypt (Behnstedt & Woidich 1985), and (variably) some Northern Sinai Bedouin (de Jong 2000), have ejective plosives /tʾ/ and/or /kʾ/, but pharyngealized fricatives /š/ (and /ḍ/ in Zabīd). Faifi and Minabbih, South Arabian dialects spoken on either side of the western Saudi–Yemeni border, have

¹³ Note that this is a term used for convenience, since the class of gutturals is usually said in Semitic to include the laryngeals /h/ and /ʾ/ (Hayward & Hayward 1989; McCarthy 1991), sounds which do not pattern with pharyngeals, uvulars, and emphatics in Mahriyōt.

¹⁴ It appears to be lack of recognition of pre-pausal glottalization that led Johnstone (1975: 99) to postulate the pre-glottalized phonemes /ʾr/ and /ʾl/ in Mehri, and possibly also /ʾd/. Pre-glottalized (note also concomitantly devoiced) [ʾr] and [ʾl] are restricted to pre-pausal position: the examples given by Johnstone of these phones follow long vowels in word-final position — *səyo:ʾr* “to go” and *məyo:ʾl* “to turn aside” (1975: 99).

a non-pharyngealized abfricated reflex of *ʕ, namely /st/, but all other emphatics are pharyngealized. And in several dialects of Arabic, the pharyngealization in /s/ has weakened to the degree that any former distinction between *ʕ and *s has broken down (Watson 2002: 279).

The different articulatory correlates of emphasis in Mahriyōt are at least partially phonetically motivated: crucially, the place and stricture of a segment are responsible for the phonetic interpretation of a phonological feature in a particular context. The most common pharyngealized consonants are those sounds with a primary articulation at a distance to the secondary (pharyngeal) articulation — namely dentals, alveolars, and bilabials. In a system in which the main correlate of emphasis is pharyngealization, velar consonants are rarely pharyngealized due to the proximity of the primary oral stricture to the secondary pharyngeal stricture — pharyngealization is either reflected principally in a lowering and retraction of adjacent vowels, or results in a retraction of the place of articulation from velar to uvular (see Delattre 1971; Zemánek 1996). Both cases are found in different dialects of Arabic. In a system in which the

main correlate of emphasis is glottalization, the problem is reversed: the most favoured place for ejectives is velar (Ladefoged & Maddieson 1996: 78), since it is easy to raise the necessary pressure in the relatively smaller pharyngeal cavity used to produce [kʰ]. In terms of manner of articulation, ejective fricatives are rare because of the physical difficulty in building up the requisite pressure while air is escaping from the oral stricture. Sibilants may be realized as affricates or abfricates, to aid or partially mimic the glottalic release of ejectives. The behaviour of Mahriyōt is therefore fully comprehensible — the only invariable glottalic pressure consonant is at the velar place, all other emphatics are realized with at least partial pharyngeal contraction, and two of the sibilant emphatics are affricated.

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