Glottal stop variation in Libyan Arabic

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Abstract

The glottal stop [ʔ], called hamza[1] in Arabic, undergoes different processes in different phonological environments. Sometimes, this consonant is deleted. Since this deletion is accompanied by compensatory lengthening, the moraic structure of the syllable from which the glottal stop deletes is unaffected. Other times, the quality of the vowel preceding the dropped hamza changes. So, instead of the low vowel /aa/, we end up having the mid vowel [ee]. Intervocalic ʔ is replaced by the glide *y*, which may resyllabify as a coda. Finally, across a word boundary, the hamza gets deleted, causing the consonant preceding it to attach to the following vowel. This paper sheds light on these processes as attested in one variety of Arabic, namely the variety spoken by the dwellers of the city of Misrata, Libya, henceforth Misrata Libyan Arabic (MLA).

I. INTRODUCTION

The glottal stop has received considerable attention in the Arabic linguistic studies. Scholars of Quran recitation paid much attention to it, as well as to other sounds, intending to preserve the precise pronunciation of the verses of the glorious Quran. In the third volume of his monumental, and most influential, work Al-Kitab 'The Book', Sibawayh devotes a separate chapter to this consonant, thus reflecting the array of forms it assumes and the processes it undergoes. Sibawayh lists four processes the glottal stop goes through: taħqiiq 'full realization', taxfiif 'weakening', badal 'replacement', and ħadf 'deletion'. He, however, says that the hamza cannot undergo idghaam 'assimilation' because assimilation leads to gemination and a hamza "should not be geminated … [because] the hamza is a "heavy" consonant which should be weakened in a way other than idghaam, if ease of articulation is to be achieved." (Sibawayh (1982), as translated by Al-Nassir (1993: 81).

The hamza is a frequent casualty in Arabic, either weakened, replaced or elided. Fascinatingly, in Cairene, the hamza may be used as a replacement for the uvular stop /q/. As a result, underlying forms like /qaala/ 'he said', /waqaʕa/ 'it m. fell', /ṭariiq/ 'road' surface as [ʔaal], [wiʔiʕ] and [ṭariiʔ], respectively. Another noteworthy observation about Cairene is that, contrary to Sibawayh's statement quoted in the previous paragraph

about the nonexistence of the geminate hamza, such a sequence does exist in Cairene. Thus, all the following forms are attested: [raʔʔaʕ] 'he patched', [baʔʔaal] 'grocer', [saʔʔa] 'family name'. It should, however, be stated that this [ʔʔ] is a realization of a geminated /q/. This is revealed by how these words are spelt and confirmed by listening to these words in other varieties of Arabic, both Standard and vernacular, where *q* rather than ʔ can be seen and heard.[2]

II. Syncope and Compensatory Lengthening

Consider the following examples:

(1)   a. /raʔs/ → [raas]   'head'
        b. / kaʔs/ →[kaas]   'cup'
        c. /ʃaʔn/ → [ʃaan]   'importance'
        d. /faʔr/ → [faar]   'mouse'
        e. /faʔs/ → [faas]   'axe'
        f. /faʔl/ → [faal]   'omen'
        g. /θaʔr/ → [taar][3]   'revenge'

(2)   a. /biʔr/ → [biir]   '(water) well'
        b. /ðiʔb/ → [diib]   'wolf'
        c. /fiʔ.raan/ → [fiiraan]   'mice'

        d. /ṣiʔ.baan/ → [siibaan] [lice eggs]

(3)   a. /ʃuʔm/ → [ʃoom] 'bad omen'
        b. /luʔm/ → [luʔum]

The first point to notice about (1), (2) and (3) is that a sequence of the low vowel followed by a cluster comprising the glottal stop and another consonant, [aʔC], is much more attested in the Arabic language than the sequence [iʔC] or [uʔC]. I could recall only the forms *ẓiʔr* 'breastfeeder', *suʔr* 'residue/saliva' and *suʔl* 'demand', three highly classical words out of use for some centuries now. Secondly, in all the examples apart from (2c, d) the hamza is the first member of a coda cluster. By contrast, in (2c, d) *ʔ* is the sole constituent of the coda of the first syllable. Moreover, the three data sets reveal that the glottal stop is deleted word-internally in the coda position. This deletion, however, triggers vowel lengthening. Since lengthening the vowel makes up for the lost consonant, this process is known as 'compensatory lengthening' (Lloret, 1988; Hayes, 1989; Sprouse, 1997; Kager, 1999).

Since [ʔ] is moraic in the examples above, the lost mora, resulting from glottal stop deletion, is compensated for by lengthening the preceding vowel. Thus /aʔ/ changes to [aa], while the sequence /iʔ/ surfaces as [ii]. Unexpectedly, in (3a) /uʔ/ becomes [oo] not [uu]. In (3b), except for the epenthetic [u], the surface form is identical to the input form. It could be argued that this form is kept intact and is not changed to *loom* in order to keep it distinct from the homophonous form *loom* 'blame n.' A more likely hypothesis, however, is that it is unchanged because it is treated as a direct borrowing from Standard Arabic. Evidence supporting this hypothesis is the observation that related words also surface unaffected: *laʔiim* 'mean m. s.' *liʔaam* 'mean m. pl.', *laʔiimaat* 'mean f. pl.'

Note in passing that in (3b) vowel epenthesis prevents having a cluster of rising sonority. In all the other examples in the three data sets, if there was a consonant other than [ʔ], speakers of the dialect would go for vowel epenthesis; for instance, a form like /ʃahr/ would surface as [ʃahər] 'month'.

III. Syncope and Quality Change
The following examples depict deletion and change of vowel quality
(4) a. /ʃifaaʔ/ → [ʃəfee] 'recovery'
    b. /ɣadaaʔ/ → [ɣəadee] 'lunch'
    c. /hanaaʔ/ → [hanee] 'peace of mind'
    d. /samaaʔ/ → [səmee] 'sky'
    e. /ʕazaaʔ/ → [ʕəzee] 'condolence'
    f. /nabaʔ/ → [nəbee] 'news'
    g. /ʃitaaʔ/ → [ʃtee] 'winter'
    h. /kiraaʔ/ → [kree] 'rent'
    i. /sawaaʔ/ → [səwaa] 'equal'
    j. /dawaaʔ/ → [dəwaa] 'medication'

It is easy to see that in these words the final hamza is dropped. Apart from the last two forms, whose vowel remains intact, all the other forms display a change in vowel quality; /aa/ in the input forms surfaces as [ee] in the output.

In spite of consonant deletion and the change in vowel quality, the moraic structure of the ultimate syllables of these forms is the same, since the glottal stop in all the forms is extrametrical. Even if the final glottal stop were not extrametrical, the dialect under study would not disfavour superheavy syllables word-internally, let alone finally.

Different Arabic vernaculars make use of different strategies to avoid such a syllable in non-final position. For instance, speakers of Urban Hijazi Arabic (Al-Mohanna 2021) resort to vowel epenthesis to get rid of this kind of syllable. This can be seen in the following examples.
    (5) a. /ʒaar.na/ → [ʒaa.**ra**.na] 'our neighbour'
        b. /beet.kum/ → [bee.t**a**.kum] 'your pl. house'
        c. /ħa.biib.hum/ → [ħa.bii.b**a**.hum] 'their loved one m.s.'
        d. /xa.ruuf.ha/ → [xa.ruu.f**a**.ha] 'her lamb`'
In (5a), the /r/ is coda to the initial syllable, which is superheavy and not preferred in Urban Hijazi Arabic. Speakers of that vernacular insert a vowel so that this /r/ no longer belongs to the initial syllable but becomes onset to the inserted vowel: /jaar.na/ → [jaa.**ra**.na]. The same process is applied to the forms in (5b, c, d).

Similarly, Cairene Arabic does not tolerate this syllable. However, speakers of Cairene use a different repair strategy in avoidance of this syllable. Those speakers shorten the long vowel in a non-final closed syllable. Consider the realization of the same examples in Cairene.
(6) a. /gaar.na/ → [gar.na] 'our neighbour'
    b. /beet.kum/ → [bet.kum] 'your pl. house'
    c. /ħa.biib.hum/ → [ħa.bib.hum] 'their loved one'
    d. /xa.ruuf.ha/ → [xa.ruf.ha] 'her lamb'

Again, in (6 a, b) the initial syllables are superheavy. Consequently, Cairene speakers shorten their vowels, rendering the syllables bimoraic instead of the disfavoured trimoraic. In (6 C, d) it is the penult that undergoes this process.

In the vernacular under scrutiny, on the contrary, a superheavy syllable is acceptable. Therefore, the forms in (5) and (6) are realized as [ʒaar.na], [beet.kum], [ħa.biib.hum], [xa.ruuf.ha], respectively.

IV. Replacement by a Glide
Word-internally when in onset position, the hamza is replaced by the palatal glide /y/.
The examples in (7) illustrate this.
(7)   a. /xaa.ʔif/ → [xaa.yif] 'scared m.s.'
        b. /θaa.ʔir/ → [taa.yir] 'revolutionist'

c. /haa.ʔir/ → [haa.yir] 'puzzled m.s.'
d. /baa.ʔid/ → [baa.yid] 'worn out'
e. /xa.saa.ʔir/ → [xa.saa.yir] 'losses'
f. /ɣa.naa.ʔim/ → [ɣa.naa.yim] 'spoils (of war)
g. /saa.ʔil/ → [saa.yil] 'liquid adj.[4]
h. /xaa.ʔi.fah/ → [xaay.fa] 'afraid f.s.'
i. /ṣaa.ʔi.mah/ → [ṣaay.ma] 'fasting f. s.'
j. /ɣaa.ʔi.bah/ → [ɣaay.ba] 'absent f. s.'
k. /faa.ʔi.zaat/→ [faay.zaat] 'winners f.'

It is obvious that the glide /y/ replaces the glottal stop intervocalically, precisely between the low long vowel /aa/ and the high short vowel /i/. In examples (7a-g), the glide in each of the output forms is onset to the ultimate syllable, the same position occupied by the hamza in the input forms, e.g. /xaa.ʔif/ → [xaa.yif]. In all these forms, this syllable is final, closed and headed by a short, non-low vowel. Such a syllable is permissible both in SA and in the dialect under investigation. In the forms in (7h-k), on the other hand, suffixing the feminine singular nominal ending /-a/ (or its plural counterpart /-aat/ (7k)) renders this syllable penultimate rather than final. Of course, the consonant closing the syllable in question automatically becomes onset to the newly formed syllable, causing its previous syllable to be coda-less. Such a syllable is weak; it is tolerable in SA, but intolerable in MLA.

I have used a dot to mark the boundary between syllables. But to make the picture clearer, let us take, say, (7h) as an example. In the input form /xaa.**ʔi.**fah/, the penult is *ʔi*. In the output, the hamza changes to a glide: *xaa.**yi**.fa*, but since the /f/ closing the penult in the related form (7a) has become an onset to the ultimate syllable *xaa.yi.**fa***, the penult /yi/ is no longer closed. This "weak" syllable is not welcome in the dialect. Consequently, speakers of the dialect eschew it by deleting the vowel. Now since the succession *yf* is illicit, *y* joins the initial syllable as a coda, yielding *xaay.fa*.

One final remark about the output form in (7h) is that the attachment of *y* to the initial syllable diphthongizes the monophthongal nucleus of that syllable. So instead of /aa/ in the input, we end up having [aay][5] in the output.

The reverse situation, where the glide replaces the hamza, is rarely attested. For instance, the form /yəʔis/ (when not used as a direct borrowing from SA) surfaces as [ʔayyis]'he lost hope'.

V. Deletion across a Boundary
The following examples are representative of elision of the glottal stop across a word boundary.
(8)   a. ʒaab ʔilbaraka 'he brought the blessing'
          b. ħooʃ ʔilmudiir 'the managers house'
          c. daar ʔilhoola 'he made the cross-eyed, i.e. he ignored'

d. reet ʔilmooz   'I saw the bananas'
e. min qʔilli 'who is the one?'

As these examples illustrate, the glottal stop is dropped utterance-internally. Eliding the glottal stop gives rise to resyllabification. Let us focus on / ʒaab ʔilbaraka/ to see what's going on. This utterance is syllabified as / ʒaab.ʔil.ba.ra.ka /. It is clear that the /b/ is coda to the first (more specifically preantepenultimate) syllable. Once the glottal stop is dropped, the antepenult will lose its onset. Given the principle of Onset Maximization (Selkirk 1982), /b/ will no longer be coda but will immediately occupy the position of the missing hamza and will function as onset to the following syllable: [ʒaa.b il.ba.ra.ka]. The same is true of examples (8b, c. and d), where the /ʃ, r, and t/ will each affiliate to the following syllable.

Example (8e), cited in Aurayieth (1982: 60), is different. Here the glottal stop is deleted together with the vowel following it. This yields a cluster of a nasal and two laterals [nll]. This cluster immediately triggers total assimilation and haplology. Regarding total assimilation, the alveolar nasal loses its nasality, since it assimilates to the lateral it precedes, producing the illicit sequence [lll]. As for haplology, in Libyan Arabic, the process is attested when three identical, or similar, consonants are contiguous and the second of which is the definite article, the exact sequence we have just obtained. This sequence is impermissible and, as a result, one of the consonants is dropped (Abumdas 1985; Elramli 2012). Thus the example at hand will result in the desired output form [milli]. Given the fact the geminates are ambisyllabic, this form is syllabified as [mil.li].

VI. Retaining the Hamza
We have seen that the hamza is targeted by several processes in various positions. In spite of these processes, the hamza is retained utterance-initially. In fact, since Arabic syllables must have an onset, the glottal stop is provided through prosthesis to a morpheme which is otherwise onsetless. For example, vowel-initial morphemes like the definite article /il-/ 'the', the relative pronoun /illi/ 'which/who', the first- and second-person independent pronouns /anee 'I', inta 'you' m.s./ receive the hamza so that they do not flout this prerequisite. Likewise, many loan words borrowed into Arabic also surface with the hamza, e.g. /antenna/ [ʔanteenna] 'antenna' (Watson 2002; Broselow 2017).

It should be added that in some dialects of Libyan Arabic (especially in Bin Walid, Sirt, and neighbouring areas), the glottal stop may sometimes be dropped in utterance-initial position, /ʔanee/ → [nee] 'I'. This means that the glottal stop together with the vowel following it are lost. Thus, such a word ends up monosyllabic instead of disyllabic. Similarly in eastern Libyan Arabic, a glottal stop may be deleted, e.g. /ʔanaa/ → [naa] 'I'. Alternatively, it may sometimes be replaced by [y], e.g. /ʔaamna/ → [yaamna] 'Amina', /ʔaadim/ →

[yaadim] 'Adam' (cf. section 4). This, however, is not the case in MLA, where the hamza is maintained in such words.

Conclusion

This paper has dealt with the glottal stop in one variety of Libyan Arabic. We have seen that the glottal stop is appended to onsetless morphemes to observe the ban on onsetless syllables. In other cases, however, the hamza is avoided through one process or another. Sometimes, it is elided and compensated for, giving rise to vowel lengthening. Other times, the hamza is deleted, accompanied by a change in the quality of the following vowel. However, other times, it is replaced by a glide, a replacement that may lead to resyllabification. We have also seen that despite the observation that the glide typically replaces the hamza, in some rare instances, these two segments exchange roles, with the hamza replacing the glide.

The dialect at hand is understudied; more studies can be conducted to tackle the behaviour of other segments and other phonological aspects of the dialect.

Notes

1. The terms *glottal stop* and *hamza* are used interchangeably in this paper.

2. *q* has different manifestations in various Arabic dialects. It is always spelt ق, but this can be pronounced [q] (e.g. in Tunisia), [ʔ] (e.g. in Egypt), [g] (e.g. in Libya), or even [ɣ] (e.g. in the Sudan). Of course, Sibawayh was stating observations about the different Arabic dialects of his time.

3. The dialect investigated bans the interdental fricatives. Consequently, underlying /θ/ and /ð/ are realised as [t] and [d] respectively; underlying /ẓ/ surfaces as [ḍ], e.g /ẓaalim/ → [ḍaalim] 'oppressive/oppressor m. s.'

4. In SA *saaʔil* means either 'beggar' or 'liquid'. In MLA, however, *saayil* is a realization of the form with the latter meaning; the meaning *beggar* is associated with a totally different form: *wahhaab*.

5. Glides are consonantal and occupy syllable margin positions. However, a vowel-glide sequence is classified as diphthongal in the literature. (See Heath 1987; Owens 1984; Abu-Mansour 1992; Abdunnabi 2000; Rosenthal 1994; Rosenthal 2006) The exact nature of *aay*, is beyond the scope of this paper. For arguments in support of treating a combination of a vowel and a glide as diphthongs see Elramli (2018) and references therein.

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