An Analysis of the Inflectional System of Person, Number, and Gender of Verbs in Hijazi Saudi Arabic (HSA)

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الملخص

تناولت الدراسة التحليل اللغوي للشخص (متكلم، مخاطب، غائب) والعدد (مفرد، مثنى، جمع) والجنس (مذكر، مؤنث) في لهجتي الجزيرة العربية السعودية الحجازية والحجازية القديمة من منظور التجزيء الصوتي الطبقي (autosegmental) وذلك لتوضيح ظاهرة توزيع الضمائر العربية على أجزاء الكلمة الثلاث (البداية والوسط والنهاية) في تلك اللهجتين. شارك في الدراسة أربعة متحدثين اصليين للهجة السعودية الحجازية (سيدتين ورجلين) لينطقوا قائمة من الأفعال قد وفرت لهم لهذا الغرض. وقد تم استخدام الأمثلة في بحث عبدالحميد (1990) وبوتين (2017) لتوفير الأمثلة في الحجازية القديمة.

وجد الباحث اختلاف أفعال الزمن الماضي والافعال المبنية للمجهول في الحجازية القديمة عن نظيراتها في العربية الفصحى الحديثة والسعودية الحجازية. فمن مواطن الاختلاف زيادة الصوتين [j,w] في نهاية الفعل وتشديد الاصوات في مواضع مختلفة من الفعل. ومن السهل على العامة أن يربطون اللهجات بأنها منحدرة من أخرى على أساس وحدة الموقع الجغرافي أو تشابه الاسم على الرغم من عدم علمية ذلك التصور فارتباطا بذلك وجد الباحث عدم صحة ذلك التصور عند مقارنة الحجازية القديمة والعربية الفصحى الحديثة والسعودية الحجازية.

Abstract

This study examines person, number, and gender inflections in the past tense forms of Hijazi-Saudi Arabic (HSA) and Hijazi-Classical Arabic (HCA) verbs. It sheds light on the inflectional rules of forming verbs in HSA, an understudied variety of Arabic, adopting an autosegmental approach which highlights the variety's nonconcatenative nature. Four native speakers of HSA, two females and two males were consulted, in order to provide data. They were given a list of verbs and requested to say the verb versions in HSA. HCA examples follow the morphological rules explained by Abdulhameed (1990) and Putten (2017). The past tense verbs and the passive voice forms in HCA differed from the corresponding forms used in Modern Standard Arabic (MSA) and HSA: for example, the additional approximant consonants [j, w] at the end of the verb, and the gemination or lack of gemination in various verb positions. It is tempting, although not scientifically sound, to surmise that a language is an antecedent of another when both are spoken in the same region and share one cover term, 'Arabic.' However, this study finds that postulation inaccurate when analysing data in the different language varieties: HCA, MSA, and HSA.

Keywords: Arabic, Saudi, Hejazi, inflection, morphology, autosegmental

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Introduction

Arabic has a regular morphological system primarily rooted in three sounds [qal] 'say'; however, in some verbs there could be four sounds, [zlzl] 'shake', or five, [ʔnTlq] 'start off', or six, [ʔstxrʒ] 'extract'. In addition to these root segments, some sounds are added to inflect different persons, numbers, or genders. Such regularity allowed Arabic morphologists to devise a tool to help analyze the words of the pre-modern standard Arabic varieties and the Modern Standard Arabic (MSA) into roots and inflections. This tool is called *Almizan Alsarfi*, literally 'the morphology scale' (Alhamalawi, 1911; Qindeel & Yosef, 2008). This scale is referred to as having a 'dummy verb' whose consonants change to produce prescriptively well-structured verbs. It is also used to check the accuracy of those verbs in Arabic, as utilized in Alhamalawi (1911). This is possible because the structures of verbs in these varieties are largely regular. Moreover, due to the nonconcatenative nature of Arabic, the sounds used to derive verbs are usually included within the sounds of the root, or after, or sometimes before. In nonconcatenative morphology, root sounds are not necessarily strung together when adding affixes (Haspelmath & Sims, 2010): for example, the root 'قال' /qala/ say is inflected with the present affix as 'يقول' /jaqulu/.

Arabic as a nonconcatenative language provides a rich field for analysis. One possible reason for this morphological phenomenon is that not all Arabic morphemes are explicit, with the different varieties of Arabic and languages' natural evolution adding to the system's complexity. Such complexity manifests itself through variations of inflections in different varieties of Arabic, as some morphemes vary, and some do not exist in all Arabic varieties. For example, the dual morpheme, -a(ta)# as in [qala/qalata], is not used in most of the modern Arabic varieties. In this study, HSA, the Arabic variety spoken in the Western side of the Arabian Peninsula, in the area known as Hijaz, was analyzed in order to create a list of its inflectional morphemes of person, gender, and number.

In MSA, the list of verbs with all the different persons, genders, and numbers was compiled and then each form was matched with a corresponding form in HSA. An analysis of data in MSA and HSA was conducted to determine the different morphemes in these varieties, and how and to what extent they are conventionalized. After extracting all the morphemes, the roots were analyzed to determine how the root system is represented, and what forms of roots are taken in HSA. In addition, some connections were made with the variety of classical Arabic (henceforth HCA) that was spoken in the Western side of the Arabian Peninsula, in the area known as Hijaz. The word 'hijaz' means dividing object or mountain, in reference to the mountainous terrain separating the Tehama plains that extend along the Red Sea from the elevated region of Najd in the centre of Arabia (Alhamadani, 1884; Hamza, 2002; Muhran, 1980). I reconstructed the HCA examples in this study based on the linguistic information presented by Abdulhameed (1990) and Putten (2017). The absence of previous research tackling the morphology of HSA made it necessary to produce new data for this study. HSA data was collected from native speakers. An autosegmental analysis was implemented to analyze this data to ascertain how sounds and morphemes move and appear or disappear in the morphology of HCA and HSA, which are the Arabic varieties spoken in roughly the same area of the Arabian Peninsula – namely, the Hijaz region, more specifically linked to Makkah and its environs - at different periods. HCA has been spoken since the first Hijri year, around 622 AD, and is the language spoken by the Quraish, the main tribe living in Makkah (Muhran, 1980). HSA, on the

other hand, is the variety of Arabic spoken by the inhabitants of urban Makkah whose ancestors have not lived in the city's suburbs for the past thirty to one hundred years. The varieties of Arabic spoken by people whose forebears did live in Makkah's suburbs are different from HSA and are not considered in this study.

An autosegmental analysis allows us to capture the circumfixation property of affixes (Lieber, 1984; McCarthy, 1981). For example, Arabic speakers add the feminine, present, and plural morphemes to the verb root [qal] 'said' to become [taquluna] 'say'. Note the inflections attached to the beginning or end of the root and how they affect its middle. Consider the autosegmental representation below.
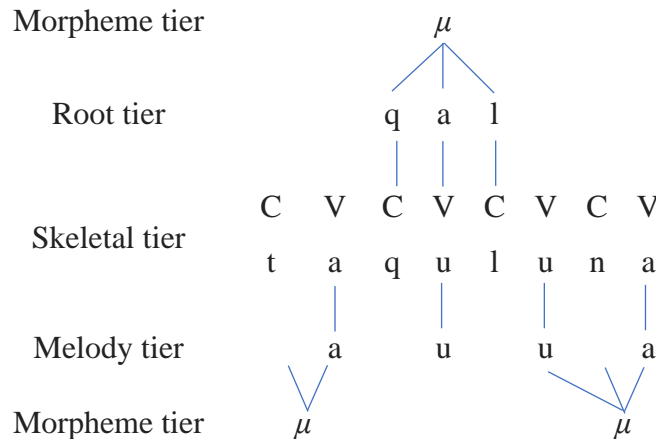
Participants

Four native speakers of HSA were consulted: two males and two females. One male participant is expected to graduate in a year's time and the other three are BA graduates, all of them have study or are studying at Umm Al-Qura University, in Makkah, Saudi Arabia. The participants reported that they and their parents lived in Makkah for their entire childhood, and thereafter for most of their lives. In addition, they all stated that they went to regular public schools and that most of their friends are also from the Hijaz region.

Methodology

Participants received a list of MSA verbs and were requested to give their equivalent examples from the non-standard, عامية Aamiah, the variety of language that they speak. The questions to elicit the target sentences were versions of the following template, filling the blanks with the different MSA verb roots listed below the question template:

Question Template: كيف تقول الكلمة "...." بلهجتك العامية ـ اللهجة غير الفصحى؟.

Literally translated: How do you say the word "…." in your colloquial dialect, the non-Fusha dialect?

The various MSA verbs represented different variations of the following verb roots:

- [qal] (vowel medial root)
- [sʔl] (glottal stop medial root)
- [xrʒ] (three-consonant root)
- [bdʔ] (glottal stop final root)
- [ʔxð] (glottal stop initial root)
- [zlzl] (four sound root).

For each of these roots, the following forms were given: first-, second-, and third-person; singular, dual, and plural; passive; and the masculine and feminine of each. These forms are given for comparing the forms in HSA with MSA. Answers were recorded, and then phonetically transcribed. Whenever there was confusion or disagreement in pronunciation, the participants were asked to confirm which pronunciation was the correct one to use.

Based on the data obtained from the participants, I wrote derivation rules for every example following the approach in Bisele and Eisele (2002).

Data Analysis

The HSA morphemes for inflecting person, number, and gender on verbs were analyzed in this study by looking into different variations of the verbs: [qal] and [gæl] (vowel medial root); [sʔl] (glottal stop medial root); [xrʒ] (three-consonant root); [bdʔ] (glottal stop final); [ʔxð] and [ʔxd] (glottal stop initial root); and [zlzl] (four-sound root).

Table 1

The roots of the verbs analyzed in this paper for both the MSA and the HSA varieties of Arabic

root	
MSA	HSA
qal 'say'	gal 'say'
bdʔ 'start'	
sʔl 'ask'	
ʔxð 'take'	ʔxd 'take'
xrʒ 'exit' v.	
zlzl 'shake - earthquake' v.	

In HSA Arabic, the first-person singular marker is a final [t]. There is no gender distinction for the first-person singular; consider examples and rules (1).

(1) <u>Examples</u>
    (a) [gˈʊlt] 'said 1st SG'
    (b) [badˈaʔt] 'started 1st SG'
    (c) [xarˈaʒt] 'exited 1st SG'
    (d) [saʔˈalt] 'asked 1st SG'
    (e) [zalzˈalt] 'shook-as an earthquake 1st SG'
    (f) [ʔæxˈət:] 'took 1st SG'

(1) Rules

1st SG: $C_1\{C_2,V_2\}C_3(C_4) \rightarrow C_1V\{C_2,V_2^{1}\}V(C_3)(VC_4)t$

- (a) 1st SG vowel-medial root: $C_1V_2C_3 \rightarrow C_1\upsilon C_3t$
- (b) 1st SG glottal-final root: $C_1C_2C_3 \rightarrow C_1aC_2aC_3t^{2}$
- (c) 1st SG three-consonant root: $C_1C_2C_3 \rightarrow C_1aC_2aC_3t$
- (d) 1st SG three-consonant and glottal medial root: $C_1C_2C_3 \rightarrow C_1aC_2aC_3t$
- (e) 1st SG four-consonant root: $C_1C_2C_3C_4 \rightarrow C_1aC_2C_3aC_4t$
- (f) 1st SG glottal-initial root: $C_1C_2C_3 \rightarrow C_1æC_2ə(C_3)t$:

In 'a' to 'e' of (1), the [t] sound that represents the morpheme of the first-person singular verbs comes after the last sound of the root. The phonological process of neutralization (Hayes, 2011) affects the voicing quality of neighboring [d] and [t] sounds. When there is a voiced sound following this cluster, both are voiced and when there is not a voiced sound, neither are voiced. When we pronounce this word out of context, the final coda cluster of [d] and [t] do not precede a voiced sound and we pronounce them both as a long [t] at the end of (1. f). Note how each of the other examples of (1) end with a consonant cluster while (1.f) ends with the gemination [t:]. This [t:] is a combination of [d], from the root, and [t] marking the first-person singular where the [d] loses the [+voice] feature and becomes similar to the following voiceless sound [t]. In MSA, however, the same root has an interdental [ð] as the coda. Since this interdental is different from [t] in manner, place, and voicing, neutralization is not effected in these instances (Hayes, 2011).

The rules in this section start with an unnumbered line that demonstrates the general rule of derivation. In (1) for example, the general rule of derivation is for the first-person singular past tense verb in HSA. The parentheses indicate optionality, whereas the braces indicate a choice. As noted above, the general marker for the first-person singular is the final morpheme [t], called the [t] of the speaker in Arabic. The choice of vowel to fill the surroundings of the root segments is based on the root type. For the vowel-medial root, rule (a), for example, there is a [ʊ] vowel following the first consonant and no other added vowel because there is a vowel in the root, and it is not necessary to separate the clusters of consonants. The vowel is the core of the syllable in Arabic (Ryding, 2014), and since there are none in the roots of examples (b-f), a vowel is inserted in every syllable of these examples.

The gender distinction between the first-person dual and the first-person plural is not present in HAS, contrary to the case with verbs, adjectives, and pronouns in most modern urban Saudi dialects. The first-person plural masculine inflection is [-nə] attached to the last segment of the root. Interestingly, this inflection is generalized and regularized to include the first-person plural[3], masculine, and feminine, as demonstrated in the list below:

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[1] V2 indicates the second segment in the root, a vowel in this example

[2] C_3 indicates the third segment in the root, a consonant in this example; the second segment of this root is replaced with another vowel

[3] The dual marker, which appears in HCA and MSA, is lost in most urban varieties of Arabic, and the number system consists of singular and plural, c.f. Ferguson (1959).

(2) Examples

(a) [gˈʊlnə] said 1st DL/PL'
(b) [badˈaʔnə] 'started 1st DL/PL'
(c) [xarˈaʒnə] 'exited 1st DL/PL'
(d) [saʔˈalnə] 'asked 1st DL/PL'
(e) [zalzˈalnə] 'shook - as an earthquake 1st DL/PL'
(f) [ʔaxˈadnə] 'took 1st DL/PL'

1(2) Rules

1st DL/PL: $C_1\{C_2,V_2\}C_3(C_4) \rightarrow C_1V\{C_2,V_2\}VC_3(VC_4)$nə

(a) 1st DL/PL vowel-medial: $C_1V_2C_3 \rightarrow C_1\upsilon C_3$nə
(b) 1st DL/PL glottal-final: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$nə
(c) 1st DL/PL three consonant root: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$nə
(d) 1st DL/PL three-consonants and glottal medial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$nə
(e) 1st DL/PL four-consonant: $C_1C_2C_3C_4 \rightarrow C_1aC_2C_3aC_4$nə
(f) 1st DL/PL glottal-initial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$nə

Similar to (1), [-nə] exists in all inflections of the dual and plural first-person verbs for the six types of verbs covered in this paper. In addition to the suffix marker [-nə], the differences between inflected verbs in (1) and (2) are in the existence or non-existence of the vowels, and what type of vowels they are. A minor difference in (2) compared to (1) is in the vowels surrounding the glottal-initial root, which is [a] in (2) instead of [æ & ə] in (1). The second-person singular feminine marker is [-ti] as in (3). Again, the geminate /t/ appears in (3.f) for the same reason of (1.f) and shows in all second-person inflections of the verb root, [ʔxd].

(3) Examples

(a) [gˈʊlti] 'said 2nd SG FEM'
(b) [badˈaʔti] 'started 2nd SG FEM'
(c) [xarˈaʒti] 'exited 2nd SG FEM'
(d) [saʔˈalti] 'asked 2nd SG FEM'
(e) [zalzˈalti] 'shook - as an earthquake 2nd SG FEM'
(f) [ʔaxˈat:i] 'took 2nd SG FEM'

(3) Rules

2nd SG FEM: $C_1\{C_2,V_2\}C_3(C_4) \rightarrow C_1V\{C_2,V_2\}V(C_3)(VC_4)$ti

(a) 2nd SG FEM vowel-medial: $C_1V_2C_3 \rightarrow C_1\upsilon C_3$ti
(b) 2nd SG FEM glottal-final: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$ti
(c) 2nd SG FEM three-consonant root: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$ti
(d) 2nd SG FEM three-consonants and glottal medial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$ti
(e) 2nd SG FEM four-consonant: $C_1C_2C_3C_4 \rightarrow C_1aC_2C_3aC_4$ti
(f) 2nd SG FEM glottal-initial: $C_1C_2C_3 \rightarrow C_1aC_2a(C_3)$t:i

The second-person singular masculine marker is [-t], as shown in (4). The comparison of (3) with (4) shows the similarity between the two sets since they are different only in the additional vowel for the feminine marker.

(4) Examples

 (a) [gˈʊlt] 'said 2nd SG MASC'
 (b) [badˈaʔt] 'started 2nd SG MASC'
 (c) [xarˈaʒt] 'exited 2nd SG MASC'
 (d) [saʔˈalt] 'asked 2nd SG MASC'
 (e) [zalzˈalt] 'shook - as an earthquake 2nd SG MASC'
 (f) [ʔæxˈat:] 'took 2nd SG MASC'

(4) Rules

2nd SG MASC: $C_1\{C_2,V_2\}C_3(C_4) \rightarrow C_1V\{C_2,V_2\}V(C_3)(VC_4)t$

 (a) 2nd SG MASC vowel-medial: $C_1V_2C_3 \rightarrow C_1\upsilon C_3t$
 (b) 2nd SG MASC glottal-final: $C_1C_2C_3 \rightarrow C_1aC_2aC_3t$
 (c) 2nd SG MASC three-consonant root: $C_1C_2C_3 \rightarrow C_1aC_2aC_3t$
 (d) 2nd SG MASC three-consonants and glottal medial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3t$
 (e) 2nd SG MASC four-consonant: $C_1C_2C_3C_4 \rightarrow C_1aC_2C_3aC_4t$
 (f) 2nd SG MASC glottal-initial: $C_1C_2C_3 \rightarrow C_1aC_2a(C_3)t:$

The second-person and plural markers for both genders have one regularized inflection [-tu]. In (5), all the verbs are inflected with [-tu].

(5) Examples

 (a) [gˈʊltu] 'said 2nd DL/PL'
 (b) [badˈaʔtu] 'started 2nd DL/PL'
 (c) [xarˈaʒtu] 'exited 2nd DL/PL'
 (d) [saʔˈaltu] 'asked 2nd DL/PL'
 (e) [zalzˈaltu] 'shook - as an earthquake 2nd DL/PL'
 (f) [ʔaxˈat:u] 'took 2nd DL/PL'

(5) Rules

2nd DL/PL: $C_1\{C_2,V_2\}C_3(C_4) \rightarrow C_1V\{C_2,V_2\}V(C_3)(VC_4)tu$

 (a) 2nd DL/PL vowel-medial: $C_1V_2C_3 \rightarrow C_1\upsilon C_3tu$
 (b) 2nd DL/PL glottal-final: $C_1C_2C_3 \rightarrow C_1aC_2aC_3tu$
 (c) 2nd DL/PL three-consonant root: $C_1C_2C_3 \rightarrow C_1aC_2aC_3tu$
 (d) 2nd DL/PL three-consonants and glottal medial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3tu$
 (e) 2nd DL/PL four-consonant: $C_1C_2C_3C_4 \rightarrow C_1aC_2C_3aC_4tu$
 (f) 2nd DL/PL glottal-initial: $C_1C_2C_3 \rightarrow C_1aC_2a(C_3)t:u$

As with the third-person, the suffix [-ət] marks the singular feminine, as illustrated in the set of examples below:

(6) Examples

    (a) [gˈælət] 'said 3rd SG FEM'
    (b) [bˈadaʔət] 'started 3rd SG FEM'
    (c) [xˈaraʒət] 'exited 3rd SG FEM'
    (d) [sˈaʔalət] 'asked 3rd SG FEM'
    (e) [zalzalˈət] 'shook - as an earthquake 3rd SG FEM'
    (f) [ʔˈæxædət] 'took 3rd SG FEM'

(6) Rules

3rd SG FEM: $C_1\{C_2,V_2\}C_3(C_4) \rightarrow C_1V\{C_2,V_2\}VC_3(VC_4)$ət

    (a) 3rd SG FEM vowel-medial: $C_1V_2C_3 \rightarrow C_1æC_3$ət
    (b) 3rd SG FEM glottal-final: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$ət
    (c) 3rd SG FEM three consonant root: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$ət
    (d) 3rd SG FEM three-consonants and glottal medial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$ət
    (e) 3rd SG FEM four-consonant: $C_1C_2C_3C_4 \rightarrow C_1aC_2C_3aC_4$ət
    (f) 3rd SG FEM glottal-initial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$ət

       The masculine inflection for the third-person singular is Ø, as demonstrated by the lists of examples and rules given in (7). As this inflection has no surface realization, it is used in Arabic for producing the root. As several Arabic roots have no vowels, the same pronunciation of the third-person singular is the pronunciation used for the utterance that represents the root. For example, when I explain what a root is used for 'said 3rd SG MASC', I use the word [gˈæl].

(7) Examples

    (a) [gˈæl] 'said 3rd SG MASC'
    (b) [bˈadaʔ] 'started 3rd SG MASC'
    (c) [xˈaraʒ] 'exited 3rd SG MASC'
    (d) [sˈaʔal] 'asked 3rd SG MASC'
    (e) [zalzal] 'shook - as an earthquake 3rd SG MASC'
    (f) [ʔˈæxæd] 'took 3rd SG MASC'

(7) Rules

3rd SG MASC: $C_1\{C_2,V_2\}C_3(C_4) \rightarrow C_1V\{C_2,V_2\}VC_3(VC_4)$

    (a) 3rd SG MASC vowel-medial: $C_1V_2C_3 \rightarrow C_1æC_3$
    (b) 3rd SG MASC glottal-final: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$
    (c) 3rd SG MASC three-consonant root: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$
    (d) 3rd SG MASC three-consonants and glottal medial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$
    (e) 3rd SG MASC four-consonant: $C_1C_2C_3C_4 \rightarrow C_1aC_2C_3aC_4$
    (f) 3rd SG MASC glottal-initial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$

       The third-person plural marker for both genders is the suffix [-u] immediately after the last consonant of the root. Consider the examples and rules in (8).

(8) Examples

    (a) [gˈælu] 'said 3rd DL/PL'
    (b) [bˈadaʔu] 'started 3rd DL/PL'
    (c) [xˈaraʒu] 'exited 3rd DL/PL'
    (d) [sˈaʔalu] 'asked 3rd DL/PL'
    (e) [zalzalu] 'shook - as an earthquake 3rd DL/PL'
    (f) [ʔˈæxædu] 'took 3rd DL/PL'

(8) Rules

3rd SG MASC: $C_1\{C_2,V_2\}C_3(C_4) \rightarrow C_1V\{C_2,V_2\}VC_3(VC_4)u$

    (a) 3rd SG MASC vowel-medial: $C_1V_2C_3 \rightarrow C_1æC_3u$
    (b) 3rd SG MASC glottal-final: $C_1C_2C_3 \rightarrow C_1aC_2aC_3u$
    (c) 3rd SG MASC three-consonant root: $C_1C_2C_3 \rightarrow C_1aC_2aC_3u$
    (d) 3rd SG MASC three-consonants and glottal medial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3u$
    (e) 3rd SG MASC four-consonant: $C_1C_2C_3C_4 \rightarrow C_1aC_2C_3aC_4u$
    (f) 3rd SG MASC glottal-initial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3u$

       In HSA, the vowels surrounding the medial position segments of the verb roots are person markers, and the suffixes are gender, number, and person markers as shown in Table 2.

Table 2

An illustration of the nonconcatenative morphology in HSA of the past tense verbs derived from the root [xrʒ]

	TENSE (PAST)							GEN, NUM, PER
Three-consonants and glottal medial root	C_1	V	C_2/V_2	V	C_3	V	C_4	
1st SG: $C_1aC_2aC_3t$	x	a	r	a	ʒ	NA	NA	-t
1st DL/PL: $C_1aC_2aC_3nə$	x	a	r	a	ʒ	NA	NA	-nə
2nd SG FEM: $C_1aC_2aC_3ti$	x	a	r	a	ʒ	NA	NA	-ti
2nd SG MASC: $C_1aC_2aC_3t$	x	a	r	a	ʒ	NA	NA	-t
2nd DL/PL: $C_1aC_2aC_3tu$	x	a	r	a	ʒ	NA	NA	-tu
3rd SG FEM: $C_1aC_2aC_3ət$	x	a	r	a	ʒ	NA	NA	-ət
3rd SG MASC: $C_1aC_2aC_3$	x	a	r	a	ʒ	NA	NA	Ø
3rd SG MASC: $C_1aC_2aC_3u$	x	a	r	a	ʒ	NA	NA	-u
				ROOT				

The general shape of the verb, excluding the root, marks the past tense. This is determined by comparing the past tense verbs, such as those above, with their equivalents in the present and future tense. Compare Tables 2 and 3.

Table 3

An illustration of the nonconcatenative morphology in HSA of the present tense verbs derived from the root [xrʒ]

		GEN, NUM, PER							
		TENSE (PRESENT)							
Three-consonants and glottal medial root		C_1	V	$C_{2/}V_2$	V	C_3	V	C_4	
1st SG: ʔəC₁C₂uC₃u	ʔe	x	NA	r	u	ʒ	NA	NA	NA
1st DL/PL: nəC₁C₂uC₃u	ne	x	NA	r	u	ʒ	NA	NA	NA
2nd SG FEM: təC₁C₂uC₃i	te	x	NA	r	u	ʒ	i	NA	NA
2nd SG MASC: təC₁C₂uC₃u	te	x	NA	r	u	ʒ	NA	NA	NA
2nd DL/PL: təC₁C₂uC₃un	te	x	NA	r	u	ʒ	u	NA	NA
3rd SG FEM: təC₁C₂uC₃	te	x	NA	r	u	ʒ	NA	NA	NA
3rd SG MASC: jəC₁C₂uC₃	je	x	NA	r	u	ʒ	NA	NA	NA
3rd DL/PL: jəC₁C₂uC₃u:	je	x	NA	r	you	ʒ	u:	NA	NA
ROOT									

Also, in Tables 2 and 3, the first, second, and final rows in the content section include information linked by lines to different positions, which are occupied by different segments, of the verbs. This manner of representing the gender, number, person, and tense markers indicates the autonomous nature of these markers. That is to say, the roots of the relevant verbs are in one tier, with the markers in another, thus demonstrating the nonlinear association of the root and the attached markers in a nonconcatenative language.

In MSA and HSA, the unmarked past tense verb endings can be a vowel or a consonant [-t], marking the feminine or the first-person singular for HSA. However, in HCA, a vowel ending for the past tense verb would be marked. In HCA, the unmarked endings include an approximant

consonant [w or j], following and corresponding to the place of the existing vowels, or a long vowel in place of vowels that do not correspond with the two approximants [w and j], as illustrated below.

(9) Examples

    (a) [qˈʊltuw] 'said 2nd DL/PL'
    (b) [badˈaʔna:] 'started 1st DL/PL'
    (c) [xarˈaʒtij] 'exited 2nd SG FEM'

In addition, HCA verbs do not include glottal stops in the rhyme position (Abdulhameed, 1990). This forms part of the root glottal stops. Derivatives of the verb roots, [sʔl] and [bdʔ], are examples for the impermissibility of rhymic[4] glottal stop in HCA, (10).

(10) Examples
    (a) [badˈa:na:] 'started 1st DL/PL'
    (b) [sˈa:lu] 'asked 3rd DL/PL'

This linguistic phenomenon exists in some current western Saudi Arabic varieties, excluding HSA.

Vowel harmony affects vowels of the inflections surrounding and within the roots of all the verbs in the active voice for MSA. Vowel harmony applies to all the verbs in the active voice, in both MSA and HSA, and most verbs in the passive voice of HSA. As regards HSA, the passive voice marker is the prefix [in-] or [at:a-] attached to the respective verbs to make the subject of the verb change from the agent or experiencer to the patient or theme. This changes the voice of the sentence from active to passive. Because of this, most structures of the verbs we considered in HSA retain vowel harmony of the active voice verbs in the passive forms. Conversely, in MSA, when verbs are in the passive voice, vowel harmony does not work since the marker of the passive voice is regularly structured as [C1uC2iC3], as in [sˈuʔilə] ask.PFV-3.SG.M 'it, masculine, was asked' and [ʔˈuxiðə] take.PFV-3.SG.M 'it, masculine, was taken'.

Note that for the vowel-medial verbs, the passive voice structure is $[C_1iC_2ə]$ as in [qˈilə] say.PFV-PASS-3.SG.M 'it, masculine, was said'. This structure is different from the previous rule of structuring the passive voice because vowel clusters are impermissible in MSA. If we apply the rule $[C_1uC_2iC_3]$ to the active voice structure of a vowel-medial root verb and replace the second consonant of the rule with the second vowel of the vowel-medial root verb, the result would be a three-vowel cluster as $[C_1uV_2iC_3*]$. As regards the non-vowel root verbs, the medial consonant [xrʒ] 'root of exit' is geminated to have the structure $[C_1uC:_2iC_3]$ for the passive voice form of the verb. Table 4 below summarizes some passive verb forms in MSA and HSA.

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[4] Rhymic sounds are the ones occupying the rhyme position.

Table 4

Summary of some passive verb forms in MSA and HSA

	MSA	HSA			MSA	HSA	
FEM	qˈilət[5]	ingˈalət	say.PFV-3.SG.F.PSV	FEM	bˈudiʔət	inbˈadaʔət[6]	start.PFV-3.SG.F.PSV
MASC	qˈilə	ingˈal	say.PFV-3.SG.M.PSV	MASC	bˈudiʔə	inbˈadaʔ	start.PFV-3.SG.M.PSV
FEM	sˈuʔilət	insˈaʔalət	ask.PFV-3.SG.F.PSV	FEM	ʔˈuxiðət	ʔattaːxədət	take.PFV-3.SG.F.PSV
MASC	sˈuʔilə	insˈaʔal	ask.PFV-3.SG.M.PSV	MASC	ʔˈuxiðə	ʔattaːxəd	take.PFV-3.SG.M.PSV
FEM	xurːiʒət	xurːiʒət[7]	exit.PFV-3.SG.F.PSV	FEM	zˈulzilət	zˈulzilət	shake.PFV-3.SG.F.PSV
MASC	xurːiʒə	xurːiʒ	exit.PFV-3.SG.M.PSV.PSV	MASC	zˈulzilə	zˈulzil	shake.PFV-3.SG.M.PSV

The structure of the passive voice in HCA demonstrates a further difference. As referred to above, in MSA, the method of deriving the passive form from the three-consonant root is to geminate the medial consonant as in the passive voice forms of the verb rooted as [xrʒ]. In HCA, such gemination is marked, and the unmarked passive form structure for the three consonant root verbs would be [$C_1uC_2iC_3$ə]. Consider the examples below.

(11) Examples

(a) [xuriʒət] 'made exited FEM SG'
(b) [xuriʒə] 'made exited MASC SG'

Interestingly, this contradicts the gemination rule, marking off some Semitic languages: Chaha, a Semitic Ethiopian language, and Modern Hebrew (McCarthy, 1986). According to this rule, gemination in an ancestral variety is degeminated in a successor variety of the language. Another noteworthy difference in HCA exists in the three-consonant root verbs. In such verbs, the vowel in the onset position, which follows the first consonant, is long. See below examples. This onset-vowel long feature occurs with the active voice.

(12) Examples

(a) [xaːrˈaʒtij] 'exited 2nd SG FEM'
(b) [xˈaːraʒuw] 'exited 3rd DL/PL'

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[5] These are examples; the forms attached as suffixes are usually the same as the active ones.
[6] The participants were unsure about the passive form of [bdʔ]. Some used the prefix [in-] which can be influenced by determining the passive of [qal] and [sʔl] before.
[7] In the absence of an HSA version, native speakers may use passive voice verbs from MSA, as in the derivations of [xrʒ] and [zlzl].

Summary of the Study

In this paper, inflections of person, number, and gender when inflecting the past tense forms of HSA verbs have been demonstrated, analyzed, and discussed. The verb tense marker was found to be represented differently than the person, gender, and number markers, as well as affecting the entire verb, while person, gender, and number inflections were represented as either suffixes or both suffixes and prefixes.

The past tense verbs and the passive voice forms in HCA differed from the corresponding forms of MSA and HSA. Additional approximant consonants [j, w] at the ends of the verbs, and gemination or lack of gemination in some positions of the verbs, represent these differences.

It is worth noting that HCA is not used natively today: the samples of HCA used in this paper are only reconstructions based on an old manuscript written in that form. It is tempting to hypothesize that one language is an antecedent of another when both are spoken in the same region and share the cover term 'Arabic'. However, determining whether HSA is indeed a descendant of HCA would require further data collection, reconstruction, and analysis to deliver more definitive conclusions.

Bio

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Appendix

root	person	number	gender	MSA	HSA	root	person	number	gender	MSA	HSA
qal/gæl (vowel medial)	1st	SG	FEM	qˈʊltu.	gˈʊlt	bdʔ (glottal stop final)	1st	SG	FEM	badˈaʔtu.	badˈaʔt
			MASC	qˈʊltu.	gˈʊlt				MASC	badˈaʔtu.	badˈaʔt
		DL	FEM	qˈʊlnæ	gˈʊlnə			DL	FEM	badˈaʔna	bɪdˈɪʔnə
			MASC	qˈʊlnæ	gˈʊlnə				MASC	badˈaʔna	bɪdˈɪʔnə
		PL	FEM	qˈʊlnæ	gˈʊlnə			PL	FEM	badˈaʔna	bɪdˈɪʔnə
			MASC	qˈʊlnæ	gˈʊlnə				MASC	badˈaʔna	bɪdˈɪʔnə
	2nd	SG	FEM	qˈʊlti	gˈʊlti		2nd	SG	FEM	badˈaʔti	badˈaʔti
			MASC	qˈʊltə	gˈʊlt				MASC	badˈaʔtə	badˈaʔt
		DL	FEM	qʊltˈunːə	gˈʊltu			DL	FEM	badaʔtˈʊnːə	badˈaʔtu
			MASC	qʊltumˈæ	gˈʊltu				MASC	badaʔtʊmˈa	badˈaʔtu
		PL	FEM	qʊltˈunːə	gˈʊltu			PL	FEM	badaʔtˈʊnːə	badˈaʔtu
			MASC	qˈʊltum	gˈʊltu				MASC	badˈaʔtʊm	badˈaʔtu
	3rd	SG	FEM	qalˈət	gˈælət		3rd	SG	FEM	badaʔˈət	bˈɪdʔət
			MASC	qˈalə	gˈæl				MASC	bˈadaʔə	bˈɪdɪʔ
		DL	FEM	qˈʊlnə	gˈælu			DL	FEM	badaʔatˈa	bˈɪdʔu
			MASC	qalˈæ	gˈælu				MASC	badaʔˈa	bˈɪdʔu
		PL	FEM	qˈʊlnə	gˈælu			PL	FEM	badˈaʔnə	bˈɪdʔu
			MASC	qˈalu	gˈælu				MASC	bˈadaʔu	bˈɪdʔu
passive		FEM		qˈilət[8]	ingˈalət	passive		FEM		bˈudiʔət	inbˈadaʔət
		MASC		qˈilə	ingˈal			MASC		bˈudiʔə	inbˈadaʔ

root	person	number	gender	MSA	HSA	root	person	number	gender	MSA	HSA
sʔl (glottal stop medial)	1st	SG	FEM	saʔˈaltu.	Saʔˈalt	ʔxð/ʔxd (glottal stop initial)	1st	SG	FEM	ʔæxˈəðtu.	ʔæxˈət:
			MASC	saʔˈaltu.	Saʔˈalt				MASC	ʔæxˈəðtu.	ʔæxˈət:[9]
		DL	FEM	saʔˈalna	Saʔˈalnə			DL	FEM	ʔæxˈəðna	ʔæxˈədnə
			MASC	saʔˈalna	Saʔˈalnə				MASC	ʔæxˈəðna	ʔæxˈədnə
		PL	FEM	saʔˈalna	Saʔˈalnə			PL	FEM	ʔæxˈəðna	ʔæxˈədnə
			MASC	saʔˈalna	Saʔˈalnə				MASC	ʔæxˈəðna	ʔæxˈədnə
	2nd	SG	FEM	saʔˈalti	Saʔˈalti		2nd	SG	FEM	ʔæxˈəðti	ʔæxˈət:i
			MASC	saʔˈaltə	Saʔˈalt				MASC	ʔæxˈəðtə	ʔæxˈət:
		DL	FEM	saʔaltˈunːə	Saʔˈaltu			DL	FEM	ʔæxəðtˈu.nːə	ʔæxˈət:u
			MASC	saʔaltumˈa	Saʔˈaltu				MASC	ʔæxəðtumˈæ	ʔæxˈət:u
		PL	FEM	saʔaltˈunːə	Saʔˈaltu			PL	FEM	ʔæxəðtˈu.nːə	ʔæxˈət:u
			MASC	saʔˈaltum	Saʔˈaltu				MASC	ʔæxˈəðtu.m	ʔæxˈət:u
	3rd	SG	FEM	sˈaʔalət	Sˈaʔalət		3rd	SG	FEM	ʔæxˈæðt	ʔˈæxæðət
			MASC	sˈaʔalə	Sˈaʔal				MASC	ʔæxˈæðə	ʔˈæxæð
		DL	FEM	saʔˈalnə	Sˈaʔalu			DL	FEM	ʔæxæðætˈæ	ʔˈæxæðu
			MASC	saʔalˈa	Sˈaʔalu				MASC	ʔæxæðˈæ	ʔˈæxæðu
		PL	FEM	saʔˈalnə	Sˈaʔalu			PL	FEM	ʔæxˈəðnə	ʔˈæxæðu
			MASC	sˈaʔalu	Sˈaʔalu				MASC	ʔˈæxæðu	ʔˈæxæðu
passive		FEM		sˈuʔilət	insˈaʔalət	passive		FEM		ʔˈuxiðət	inʔˈæxæðət
		MASC		sˈuʔilə	insˈaʔal			MASC		ʔˈuxiðə	inʔˈæxæð

root	person	number	gender	MSA	HSA	root	person	number	gender	MSA	HSA
xrʒ (three consonant root)	1st	SG	FEM	xarˈaʒtu.	xarˈaʒt	zlzl (four sound root)	1st	SG	FEM	zalzˈaltu.	zalzˈalt
			MASC	xarˈaʒtu.	xarˈaʒt				MASC	zalzˈaltu.	zalzˈalt
		DL	FEM	xarˈaʒna	xarˈaʒnə			DL	FEM	zalzˈalna	zalzˈalnə
			MASC	xarˈaʒna	xarˈaʒnə				MASC	zalzˈalna	zalzˈalnə
		PL	FEM	xarˈaʒna	xarˈaʒnə			PL	FEM	zalzˈalna	zalzˈalnə
			MASC	xarˈaʒna	xarˈaʒnə				MASC	zalzˈalna	zalzˈalnə
	2nd	SG	FEM	xarˈaʒti	xarˈaʒti		2nd	SG	FEM	zalzˈalti	zalzˈalti
			MASC	xarˈaʒtə	xarˈaʒt				MASC	zalzˈaltə	zalzˈalt
		DL	FEM	xaraʒtˈunːə	xarˈaʒtu			DL	FEM	zalzaltˈunːə	zalzˈaltu
			MASC	xarˈaʒtumˈa	xarˈaʒtu				MASC	zalzaltumˈa	zalzˈaltu
		PL	FEM	xaraʒtˈunːə	xarˈaʒtu			PL	FEM	zalzaltˈunːə	zalzˈaltu
			MASC	xarˈaʒtu	xarˈaʒtu				MASC	zalzˈaltum	zalzˈaltu
	3rd	SG	FEM	xˈaraʒət	xˈaraʒət		3rd	SG	FEM	zalzalˈət	zalzalˈət
			MASC	xˈaraʒə	xˈaraʒ				MASC	zˈalzalə	zˈalzal
		DL	FEM	xaraʒatˈa	xˈaraʒu			DL	FEM	zalzalətˈa	zˈalzalu
			MASC	xaraʒˈa	xˈaraʒu				MASC	zˈalzala	zˈalzalu
		PL	FEM	xarˈaʒnə	xˈaraʒu			PL	FEM	zalzˈalnə	zˈalzalu
			MASC	xˈaraʒu	xˈaraʒu				MASC	zˈalzalu	zˈalzalu
passive		FEM		xurˈiːʒət	xurˈiːʒət	passive		FEM		Zˈulzilət	Zˈulzilət
		MASC		xurˈiːʒə	xurˈiːʒ			MASC		Zˈulzilə	Zˈulzil

8 These are examples and usually the forms attached as suffixes are the same as the active ones

9 place assimilation then voicing assimilation and gemmation

root	person	number	gender	HCA	root	person	number	gender	HCA
qal/gæl (vowel medial)	1st	SG	FEM	qˈʊltuw	bdʕ (glottal stop final)	1st	SG	FEM	badˈaːtuw
			MASC	qˈʊltuw				MASC	badˈaːtuw
		DL	FEM	qˈʊlnæː			DL	FEM	badˈaːna
			MASC	qˈʊlnæː				MASC	badˈaːna
		PL	FEM	qˈʊlnæː			PL	FEM	badˈaːna
			MASC	qˈʊlnæː				MASC	badˈaːna
	2nd	SG	FEM	qˈʊltij		2nd	SG	FEM	badˈaːti
			MASC	qˈʊltæː				MASC	badˈaːtæː
		DL	FEM	qʊltˈunːæː			DL	FEM	badaˈtˈʊnːæː
			MASC	qʊltumˈæː				MASC	badaːtʊmˈa
		PL	FEM	qʊltˈunːæː			PL	FEM	badaˈtˈʊnːæː
			MASC	qˈʊltum				MASC	badˈaːtʊm
	3rd	SG	FEM	qalˈət		3rd	SG	FEM	bˈadaːət
			MASC	qˈalæː				MASC	bˈadaːæː
		DL	FEM	qˈʊlnæː			DL	FEM	badaːatˈa
			MASC	qalˈæː				MASC	badaːˈa
		PL	FEM	qˈʊlnæː			PL	FEM	badˈaːnæː
			MASC	qˈaluw				MASC	bˈadaːuw
passive		FEM		qˈilət	passive		FEM		bˈudiːət
		MASC		qˈilæː			MASC		bˈudiːæː

root	person	number	gender	HCA	root	person	number	gender	HCA
sʔl (glottal stop medial)	1st	SG	FEM	saːˈaltuw	ʔxð/ʔxd (glottal stop initial)	1st	SG	FEM	ʔæxˈəðtuw
			MASC	saːˈaltuw				MASC	ʔæxˈəðtuw
		DL	FEM	saːˈalnaː			DL	FEM	ʔæxˈəðnaː
			MASC	saːˈalnaː				MASC	ʔæxˈəðnaː
		PL	FEM	saːˈalnaː			PL	FEM	ʔæxˈəðnaː
			MASC	saːˈalnaː				MASC	ʔæxˈəðnaː
	2nd	SG	FEM	saːˈaltij		2nd	SG	FEM	ʔæxˈəðtij
			MASC	saːˈaltæː				MASC	ʔæxˈəðtæː
		DL	FEM	saːaltˈunːæː			DL	FEM	ʔæxəðtˈuːnːæː
			MASC	saːaltumˈaː				MASC	ʔæxəðtumˈæː
		PL	FEM	saːˈaltˈunːæː			PL	FEM	ʔæxəðtˈuːnːæː
			MASC	saːˈaltum				MASC	ʔæxˈəðtuːm
	3rd	SG	FEM	sˈaːalət		3rd	SG	FEM	ʔæxˈæðət
			MASC	sˈaːalæː				MASC	ʔæxˈæðæː
		DL	FEM	saːˈalnæː			DL	FEM	ʔæxæðætˈæː
			MASC	saːalˈaː				MASC	ʔæxæðˈæː
		PL	FEM	saːˈalnæː			PL	FEM	ʔæxˈəðnæː
			MASC	sˈaːaluw				MASC	ʔˈæxæðuw
passive		FEM		sˈuːilət	passive		FEM		ʔˈuxiðət
		MASC		sˈuːilæː			MASC		ʔˈuxiðæː

root	person	number	gender	HCA	root	person	number	gender	HCA
xrʒ (three consonant root)	1st	SG	FEM	xaːrˈaʒtuw	zlzl (four sound root)	1st	SG	FEM	zalzˈaltuw
			MASC	xaːrˈaʒtuw				MASC	zalzˈaltuw
		DL	FEM	xaːrˈaʒnaː			DL	FEM	zalzˈalnaː
			MASC	xaːrˈaʒnaː				MASC	zalzˈalnaː
		PL	FEM	xaːrˈaʒnaː			PL	FEM	zalzˈalnaː
			MASC	xaːrˈaʒnaː				MASC	zalzˈalnaː
	2nd	SG	FEM	xaːrˈaʒtij		2nd	SG	FEM	zalzˈaltij
			MASC	xaːrˈaʒtæː				MASC	zalzˈaltæː
		DL	FEM	xaːraʒtˈunːæː			DL	FEM	zalzaltˈunːæː
			MASC	xaːrˈaʒtumˈaː				MASC	zalzaltumˈaː
		PL	FEM	xaːraʒtˈunːæː			PL	FEM	zalzaltˈunːæː
			MASC	xaːrˈaʒtuw				MASC	zalzˈaltum
	3rd	SG	FEM	xˈaːraʒət		3rd	SG	FEM	zalzalˈət

		MASC	xˈaːraʒæː				MASC	zˈalzalæː
	DL	FEM	xaːraʒatˈaː			DL	FEM	zalzalətˈaː
		MASC	xaːraʒˈaː				MASC	zˈalzala
	PL	FEM	xaːrˈaʒnæː			PL	FEM	zalzˈalnæː
		MASC	xˈaːraʒuw				MASC	zˈalzaluw
passive	FEM		xuriʒət	passive	FEM		Zˈulzilət
	MASC		xuriʒæː		MASC		Zˈulzilə