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Vowel Deletion in Arabic Dialects of Yemen (ADY): A Linguistic Perspective

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Abstract

Background: Little is known about Arabic Dialects of Yemen (ADY) in comparison with other Arabic dialects and/ or varieties. The purpose of this study is to account for issues related to the distinctive features of vowel deletion in ADY, their rules, and their relationship with other dialects in the regions in light of Optimality Theory (OT).

Methods: Twenty seven subjects representing most ADY were interviewed to specify in which dialect short vowels are deleted. In order to carry out the purpose of this paper,

samples of pictures plus a silent movie scene/ clip were given to the subjects to describe them in their local dialects.

Conclusions: The results outline that all ADY except Aden dialect delete short vowels, be it in the middle or at the end of the syllable, when they use the verb in the past form with 3rd.p.f.s.3rd.p.f.pl. and 3rd.p.m.p. There is no cause/effect relationship between vowel deletion and other process of consonants' segmentation and/or those of syllabification. A short vowel deletion is delimited to verbs; rather, it extends to include pronouns, overt infinitive in Modern Standard Arabic (MSA). Whereas eastern, western, northern dialects showed high vowel deletion, central dialects, namely, Taiz dialect and parts of Ibb city showed low vowel deletion. It is also shown in this study that ADY contradicts the prediction of OT in two issues: the output and the diphthongs sounds. In response to these findings, the study proposes further positive answers based on chronological approach to questions addressed.

Keywords: Vowel deletion, Short vowels, Sub-case markers, Yemen dialects, Phonological rules, Optimality theory

1. Introduction

In the last few decades there has been a growing interest among linguists in studying Arabic dialects. In fact, the intricacies in Modern Standard Arabic (MSA) make the study of it as well as the dialects derived from it more difficult, especially for those who delve into its secrets. It is for this reason perhaps that some linguists preferred only to address two varieties (languages and/ or dialects) known later as a diglossia (Ferguson, 1959a; Oweini&Hazoury, 2010). Comparing two varieties (Bedouin dialects with non-Bedouin) of Morocco, Singer (1980), concluded bysaying that in some non-Bedouin Morocco dialects, short vowels have coalesced into schwa /ə /.

Some Yemeni linguists looked at dialects from another angle by making use of not only oral, but written texts (Qafishe, 1984a, 1984b). Others wanted to know whether or not there was a dialectal effect on learning non- native language by speakers (Alsalwi, 1987). In fact, such topics attracted many linguists who decided to examine the distinctive features of Yemeni dialects including phonotactic, phonological, and morphological features (Twele, 1988; Freeman, 2002).

In SA, every sound has a phoneme and vice versa. This characteristic does not exist in some languages like English, for example, wherephonemes for sounds like /p/, /gh/ and /ɪ/ are not found, especially vowels that are problematic (though differences are clear), as opposed to Arabic. Yet, Arabic is not complete. In some cases, such as (wāw al-jamā‘ah), ‘Arabic main case marker (wāw). It is a suffix and that is normally written at the end of the verb to indicate plurality’, (al-alif), ‘ Arabic first alphabet and long vowel (ā) that is written before/ at the end of the word to indicate dual, (’asmā’a al-‘ishārah), ‘demonstrative pronouns.’,(al-rawābit), ‘linking words’,etc., a number of problems are faced because they are not pronounced as they are written. Compare:

Table 1. Comparison between written and oral Arabic words (Demonstrative pronouns and linking words types)

Written word	Oral word	Meaning
(hdhā)	(hādhā)	‘This’
(lkn)	(lākin)	‘ but’
(ḍhlk)	(ḍhālika)	‘That’

Basically, the word (ḥurūf) has been used in Arabic to mean both sounds and phonemes in spite of the fact that in English, a phoneme would refer to the graphic representation of the sound. An example of the Arabic sound is (wāw)in the word (shirbūh), ‘They (boys in the pictures) drank it (water).’ is pronounced as a long vowel /u: /, but in the word (walad), ‘a boy’,it is a consonant (glide) /wa/. The vowel (yā’), ‘Y’ in a verb like (yarmī), ‘Throw’ is a long vowel /i: /, but in a word like (yad), ‘hand’, it is /æ/(glide). Likewise, in a word like (da‘aā), ‘called’ /æ/

vowel is glottal, while in words like (anā), 'I', it is a long vowel /a: /. However, (al-hamzah), 'an indicator of a glottal stop that usually stands with (al- alif) ' A' in the initial position along with all sub-case markers as to determine a noun' is always a stop, be it a common noun as in (al-lu'lu'), ' Pearls', or a proper noun like (wafā'), ' Name of a woman'.

We obviously need much more information about MSA vowels.However, MSA has six (6) vowels, three of them are long and the other three are short. The three longvowelsareknown as main case markers.Theseare(wāw),' Long vowel /u: /, (yā'a), 'long vowel/ i: / and (ā), 'long vowel /a: /, and the other threeshortvowelsare known as sub-case makers (diacritic marks).These short vowels are: A short vowel thatends with an /ɪ / sound called (kasrah), 'a short diagonal line below the consonant phoneme', a short vowel that ends with an /o/ soundcalled (ḍammah), 'a minimized Arabic phoneme (wāw) and is normally put above the consonant phoneme', and a short vowel that ends with an /ʌ/ sound called (fatḥah), 'a short diagonal line above the consonant phoneme'. Additionally, Arabic Dialects of Yemen (ADY)havefour more sounds: Two of them are diphthongs and the other two are long vowels. Diphthongs are /au/ in words like (lawm), 'blame', andthiscanonlybefoundinthenortherndialectsofYemen.Theseconddiphthongsoundis /aɪ/ in words like (jayn), 'They (zebras in the silent short clip) came', (shirbaynah), 'They (women in the pictures) drank it (water) ', etc. and this can be found in the northern, central, and western dialects of Yemen. Concerning long vowels, they include /u: / in words like (nūm), 'sleeping', etc., andthiscanbefoundinthecentral,eastern,western,andsoutherndialects.Thesecondlong vowel is /i: / in words like (bīt), 'house', etc., and this sound can be found in the eastern, and southern dialects of the country.

Although language is a social practice, this does not mean that speakers should neglect or ignore its grammatical rules. In SA, it is common to distinguish two different types of deletion rules- rules of accusation and rules of deletion. The first type of rules is responsible for the deletion of consonant phonemes, namely, the phoneme 'N' at the end of the verbs used in plural form (Generally referred to as al-afʿaal al-khamsah. – The verbs have five shapes and always endwith the phoneme 'N;' they are known as the Five Verbs). An example of this type is the accusative item (kay), 'In order to'. Consider:

- (kaytadrusū), 'In order to study.'

Basically, the verb was (tadrusūn), 'study' (3rd.p.m.pl.), but because it is preceded by the accusative particle (kay), 'In order to', the phoneme 'N' is deleted. In fact, (kay) is not the only item that deletes the consonant phoneme 'N'. Some other accusative items that share it the same function are (idhan), 'So', (hattā), 'Until', (li), 'For', and (fa), 'To'.

The second type of rules(jussiveparticles) takes threeforms: The first form is known as "apocopation", and this, in turn, is marked by (sukūn) when the verb is in the jussive mood, 'a rounded zero that is put above long vowel indicating that it is treated as a silent phoneme, and it only occurs when the verb ends with a consonant sound e.g., (lam yalʿab), 'He did not play'. The second form is marked by the deletion of the phoneme 'N', e.g., (lam yaktubū),'They did not write.' (Originally, it was yaktubūn, but the phoneme 'N' is deleted because the verb is preceded by the particle of jussivization as well as negation (lam), 'did not'. The third form is

the deletion of vowel sound at the end of the verb e.g., (lam yamsh), 'He did not walk.' (Originally, the verb was yamshi inaffirmative case, but, again, because it is preceded by the item of deletion as well as negation (lam), 'did not', the long vowel (yā'a)/i: / is deleted here. However, notice that if the verb ends in a consonant preceded by a long vowel, the verb is marked by (sukūn), and the long vowel is replaced by a short vowel (to avoid consonant cluster) e.g., (lam tujib), 'She did not answer.'(Basically, the verb was (tujīb), 'answer', but because of (lam), long vowel /i: /is changed into a short one /ɪ/.

In fact, deletion of vowels marked by 'sukūin' is not only confined to verbs in present tense. (al-jazm), 'Jussive mood' extends to include imperative verbs also e.g., (kun), 'Be' which is basically (kūn). Annexation is also another area wherein deletion can also be found. This can be clearly seen in the deletions of (yā' al-iḍāfah), '(nā') of annexation' as in (mushāhidiya al- a' 'izzā'), instead of (mushāhidīnā al- a' 'izzā'), 'my dearest audience'.

Jussive items, in general, are divided into two types: Those particles that delete one verb known as phonemes of deletion. Examples of this type are (lam), 'Did not' and this could be preceded by (idhā), 'If,' - and in this case, the verb is changed into the future because of the existence of (idhā) - 'If', (lammā), ' Not yet', (la al-nāhya), ' forbidden No,' and this could be assimilated with (An) 'to' that precedes it (an+ lā= allā),'Not to', (lām al- 'amr), ' Imperative No', and(alam), ' Does somebody not ?'. The second type is those particles that delete two verbs known as particlesor nouns of condition. Examples of this type are (in), ' If,' (man), 'Who,' (mā), 'No,' (matā), 'When,' (mahmā), ' Whatsoever,' (ayān), ' When,' (ayna), ' Where,' (aynamā), ' Wherever,' (annā), ' How,' (ḥaythumā), ' Where', (kayfamā), ' Whatever,' and(ay), ' Any.'

Be concerned here about the fact that all the above mentioned items are used to change the verb from the present form to the past one. However, this does not mean in any way that deletion inSA is restricted tothe past verbs. It can also be found in imperative verbs and it takes the three forms 'sukūn', deletion of Nun, and deletion of vowel sound. Our concern in this research will be, generally speaking, concentratedmore on the deletion ofvowels than on the deletion of the phoneme 'N', or anything else.

Because of the importance of these vowels to people's dialectal speech, many studies have been conducted to see the effect of these vowels on reading accuracy (Abu-Rabia, 1997), reading comprehension of older as well as younger Arab speakers (Abu-Rabia, 1999).The dictionary defines the word "dialect" as a "variety of a language spoken only in one area in which words or grammar is slightly different from other forms of the same language" (Longman, 1995). Based on the above mentioned definition and in light of the earlier discussion, we can conclude that Arabic dialects have various distinctive features. Like other people in other Arabic areas, the dialectal speech of Yemeni people is characterized by vowel deletion as well as vowel lengthiness. The aim of this paper, however, is to discuss vowel deletion of ADY. The concept of "deletion" refers to the "act or process of removing something" (ibid. 1995). The reason behind taking Yemeni society as a sample of this study is that there is no study conducted on Yemeni dialects and that most of the available studies have discussed two or three dialects only.

In most ADY, people usually delete the short vowel /ɪ/ if it occurs in a short open syllable. The same thing applies to the short vowel/æ/ in such a case where it is followed by a short open syllable containing the short vowel /ɪ/. However, when the short vowel /ɪ/ is in a short open syllable and followed by a closed syllable, it is spontaneously changed by the speaker who pronounces it as a short vowel /ɪ/.The research addresses this phonological phenomenon in Yemeni society. On top of that, it casts light on how these short vowels are deleted by analyzing and discussing broadly the speech of the subjects at hand (in view of the rules mentioned earlier).

The idea of applying the distinctive features of an area and then generalizing it on the region (s) around that area dominated on some linguists. For example, Woidich (1994) considered the dialect of Cairenes "the Egyptian Arabic dialect per se" (Woidich, 1994, P. 493). However, some of the important phonological features that attracted linguists are the segmental features, mainly, vowels and consonants. Watson (1999) made it clear that target short and/ or high vowels are determined by two articulatory correlates: "pharangealization" (which is predominately spread leftwards) and "labialization" (which is predominately spread rightwards).

Another correlational study was done by Glowacka (2001), but the researcher here wanted to examine the relationship between unstressed vowel deletion and consonant cluster based on a previous experimental research. Glowacka's results show that unstressed vowel deletion was not equally observed by all subjects as some of the subjects preferred the deletion that existed in contexts wherein two devoiced obstruent were there. This was not the conclusion that Watson (2002) came to when he compared Sana'a dialect with Cairo dialect.Watson resulted that Sana'ani (ay) equals Cairene (ē) (Palatal), while (aw) equals (ō) (labio-velar) (Watson, 2002, P.22). However, other researchers preferred to describe Arabic grammar to see how and why these variations and other grammatical items of SA occur (Said, 2002; Müller-Kessler, 2003). Today, new trends in studying of dialects continue to include subjects that are discussed in light of theories (Sakarna, 2005) like Optimality Theory (OT)(Rosenthall, 2006; Bamakhramah, 2010).

For all what have been discussed earlier, it is not surprising to find a western linguist, like Jonathan Owens, describe Arabic as a "puzzle" (Owens, 2006, Introduction), because linguistshave found it difficult to prove whether or not dialect and non-words in Arabic are correlated (Haddad &Yaseen, 2007). Again, we cannot blame linguists for such viewpoints due to the fact that Arabic countries have different dialects, each of which has its own phonological features like the one at hand.

Although Arabic registered an international presence mainly from 2002- 2006 more than any other language (Furman et al., 2007), western Arabic as a Second Language (ASL) incomers are still under the level of expectation. This does not, in any way, mean that they do not know the benefits of studying abroad (Carroll, 1967; Kinginger& Farrell, 2004; Berg et al., 2008). Researchers think that it is perhaps the ramification in Arabic dialects that decrease the number into 1% only of those Americans who come to study at Arabic-speaking countries (Gutierrez et al., 2009). These students were shocked by what they have seen in Arabic societies concerning

the dialectal speech of people of those countries. Each dialect has almost independent phonological, morphological, syntactic and / or semantic systems that differentiate it from other dialects. Additionally, these systems are utterly different from the one(s) of SA which made them (students) live a state of "schizophrenic" language. That is, they were studying something and practicing something else.

Furthermore, within these dialects, we can find local vernaculars, colloquialism, accents, slangs, jargons, etc. This diversity motivated linguists to concentrate more on other issues like 'syllabicity' and 'markedness', and their relationship with words (Mwita, 2009), 'enhancement' and 'pharangealization' and how they related to pronunciations (Kenstowicz, 2009), syntactic rules in terms of correctness (Chania et al., 2010),the relationship between vowels and diacritics and the role it plays in facilitating Qur'anic speech and its phonotactic rules to reciters (Alshahrani,2008;Harrag&Mohamad, 2010) to analyze them using techniques like the hardware Hidden Markov Model (HMM), and the based recognizer that was built by Alotaibi (2010) to explore similarities and dissimilarities between the phonetic features of vowels for better understanding of them. All these studies, however, attempted to understand the distinctive features of dialectal speech including vowels (short vowels as well as long ones), consonants, etc.

Presenting an auto segmental analysis of coda deletion in Yemeni Tihami Dialect (YTD) for understanding how the phonological process takes place in this dialect, Al-Shuaibi&Kassin (2010) conducted a theoretical study supported by practical evidence from the Yemeni Tihami context. The researchers' results demonstrate that the loss of a coda consonant leads to a lengthening of the nucleus of that syllable, which is probably applicable to some YTD, and these results are in a partial contradiction withthose of Spencer who claimed that "the loss of a coda consonant that leads to a lengthening of the nucleus of that syllable is not applicable" (Spencer, 1996, P. 77).

When it comes to ADY, the first thing that draws one's attention is that it shows vowel deletion.TheonlyexceptionhereisforAdenidialect(AD) inthesouthwhereinthereisnovoweldeletionatall. Byandlarge,most Yemeni dialects in central, northern, easternandwestern parts of Yemen do not have long vowel contrasts with short ones. The distinctive features of this phonological phenomenon, vowel deletion, have been developed in a few regional dialects in the last few decades (Al-Shuaibi&Kassin, 2010). In this study, we described, identified, and analyzed vowel deletion in ADY by summarizing the phonological as well as morphological rules of this linguistic phenomenon.

Some researchers have thought that it is better to discuss dialects in view of the historical transcripts (MacMillan, 2011). This might lead, according to holders of this approach, to substitute Modern Standard Arabic (MSA) by a recognition and normalization of Arabic dialects (Salameh, 2011). This can be clearly seen in the studies of some Arab linguists like Habib, who in 2011 traced the historical changes in phonological features mainly voiceless and voiced sounds, trying to find a good explanation of how and why some people of Egypt and Levantine Arabic dialects use them in their daily speech. The researchers concluded by saying that there are two historical changes: The first one was a complete merger of /θ/ with /t/ and /ð/

with /d/. The second change, i.e. /θ/ ›/s/ and /ð/›/z/, began with borrowing words with /θ/ and /ð/ from SA, replacing them with similar sounds from speakers' native phonology /s/ and /z/ respectively. Unfortunately, this leads some of these linguists to exaggeration like those who have highlighted the idea of dividing SA into two major parts: Languages of North Arabic and Languages of South Arabic (Himyaritic). However, each part has its own dialects (Columbia Electronic Encyclopedia, 2011).

In recent years, researchershave focused on reviewing books that talked about those dialects (Harry, 2011). They attempted to find solutions for the problems of vowel deletion by conducting longitudinal / experimental studies, comparing the distinctive features of vowels of more than one language and/or dialect. Tsukada (2011), for example, examined the perception of some students from different Arab countries, Iran, and Japan for short and long vowels, and concluded that Arabic as well as Japanese listeners were more accurate than Persian listeners in identifying the length categories in the other unknown language as well as in their L1. These outcomes were so formidable that they encouraged linguists like Kotby and his colleagues (2011)to use spectral analysis of 60 healthy adult informants for testing the validity of the notion that there are 6x 2 distinct vowels, with a more central one in 14 real words from Arabic dialect of Egypt. One of the results of this study outlines that each of the 7 Egyptian vowels (regardless of the fact that SA has only3 long vowels, namely, /i: /, /a: / and /u :/) represents a distinct entity.

1.2 Aims of the Study

Since no study had been conductedto investigate this phonological phenomenon, vowel deletion, in allADY, the principal aim of this study is to examine whether Yemeni people deletevowel in their daily life speech or not. More specifically, the study attempts to answer the following questions:

1- What are the distinctive phonological features of vowel deletion in ADY? Are there any rules for vowel deletion used by Yemeni society? If there are rules, are they limited or delimited?

2- Which types of vowels are deleted by Yemenis? Long or short vowels? What is the relationship between vowel deletion and consonant cluster?

3- Is there a relationship between the vowel deleted and the diphthong sounds in the final syllable? Is this phonological feature admissible or inadmissible in other Arabic dialect(s)? To what extent ADY share this feature with these dialects? And does it support/contradictOTin this regard?

1.3 Methodology

Samples of pictures plus a silent movie-scene/clip were distributed among 22 subjects. They are all Yemeni students who study at King Saud University (KSU). They have been divided into eight groups according to the cities as follows: Dhamar (Central)group (N=5), S.1 Ahmad (29 years old), S.2Abdulkareem (32 years old), S.3Adli (28 years old),

S.4Mohammad Al-Quraishi (32 years old), and S.5 Mohammad Al-Shami (27 years old); Ibb (Central)group (N=6), S.6 Mohammad Mabkhout (28 years old), S.7Saleh (30 years old), S.8WaleedAl-Dhahmash(30 years old), S.9WaleedHailan (33 years old), S.10 Abo-Bakr (29 years old), S.11 Abdul-Aziz (34 years old); Taiz (Central) group (N=2), S.12 Abdul-Raqeeb (33 years old),andS.13Taha (33 years old); Hodeida (West) group(N=1) S.14Majid (36 years old);Sana'a (North) group(N=2)S.15AliAl-Khayshani(34yearsold)andS.16AliAl-Bohaiyri(30yearsold);Al-Baydha (East) group(N=1)S.17AhmadAl-Ahmadi(24yearsold);Marib (East) group(N=1)S.18.Turki(23yearsold);Hadramout(East) group(N=2), S.19Waheeb (34 years old), andS.20 Jamal (46 years old); Aden (South) group(N=2), S.21Fahmi (35 years old), andS.22 Ahmad Al-Shihri(35 years old). The mean of the age for all subjects = 31.59. It is to be noted here that the subjects4,18, 19 and 22 preferred to be audio recorded only.

One of the researchers interviewed the subjects and asked them to talk and/ or describe the events/ actions they saw/watched using their local dialects. The pictures as well as the silent movie-scene/clip contained actions that included the target words. The researchers, however, expected that target words would be included in the subjects' speech. In order to make sure that all target words were spoken, the interviewer asked the subjects some questions about the presented material wherein he expected them to include those words they did not talk about at the first time. Once the clinical elicited data are gathered at data collection stage, the researchers thengavethemtoaspecialistinArabiclanguageforbetteranalysis.Afterthat,theytrans-coded the speech of the subjects by transliterating it using the transliteration system (Romanization) recommended by American Library Association- Library of Congress (ALA-LC).The next step was to compare the utterances of subjects with each other to identify in which dialect short vowels were deleted and in what phonological context(in comparison with SA). Finally, the researchers evaluated the utterances of all subjects. By the step of evaluation, the researchers came to the end of their research by investigating the benefits of using the rules of vowel deletion in understanding ADY and presenting it to others.

1.4 Limitation of the study

The present study is limited to eighteen (18) Yemeni male people;all of them are majoring in Yemeni cities. It only investigates the way they are deleting short vowels in their everyday dialectal speech.

2. Results and Discussions

2.1 Phonological rules of vowel deletion in ADY

It is clear that it is no longer enough to study merely the distinctive features of a linguistic phenomenon of any language without having a sufficient knowledge of the rules of that language and / or variety. Vowel deletion in ADY is connected to phonological, morphological and syntactic rules that cannot be understood without taking them into consideration. In the ADY, the past (also known as perfect) form is considered a base for all

other forms that are, in a way or another, derived from it. However, this form (past) in ADY must be accompanied by a subject suffix when it is used with all subject pronouns. Consider:

Table 2. Pronoun-verb (past form) agreement in ADY except AD (Verb 'jilis' type)

Verb (jilis)' Sat down'inADY(exceptAD)	Meaning
(hujilis).	'He sat down.'
(he jils+at).	'She/ It sat down.'
(ant (ah) jilis+t (Interrogation)/ah).	'You (2nd.p.m.s.) sat down.'
(antīJilistī).	'You(2nd.p.f.s.)satdown
(antūjilis+tū).	'You (2nd.p.m.pl.) sat down.'
(antaynjilis+tayn).	'You (2nd.p.f.pl.) sat down.'
(ihnājilis+nā).	'We sat down.'
(hum jils+ū).	'They (3rd. p. m. pl.) sat down.'
(hinjils+ayn).	'They (3rd.p.f.pl.) sat down.'

As can be seen in Table2, the verb (jilis) in all Yemeni dialects (except AD whereinit is pronounced as (jalas), 'sat down') has taken different subject pronouns, except with the 3rd.p.m.s., as people tend to use it in its infinitive form (e.g., hujilis), 'He sat down.' It can also be observed how the consonant cluster (resulting from using certain subject pronouns) plays a pivotal role in the occurrence of vowel deletion. However, people of Aden pronounce it in a different way (with no deletion at all). In fact, when comparing ADto other Yemeni dialectsandSA, we find that AD is the closest. Compare:

Table 3. MSA, AD, and other ADY (Verb 'jilis' type)

SA	AD	Other ADY	Meaning
(huaJalas).	(hujalas).	(hujilis).	'He sat down.'
(hiyajalasat).	(he jalasat).	(he jilsat).	'She/ It sat down.'
(anta jalasta).	(ant jalast).	(ant (ah) jilist(Interrogation)/ah).	'You (Singular) sat down.'

(antumjalastum).	(antūjalastū)	(antūjilistū).	‘You (2nd.p.m.pl.) sat down.’
(antunnajalastunna).	(antumjalastum)	(antaynjilistayn).	‘You (2nd.p.f.pl.) sat down.’
(naḥnujalasnā).	(iḥnājalasnā).	(iḥnājilisnā).	‘We sat down.’
(hum jalasū).	(hum jalasū).	(hum jilsū).	‘They (3rd. p. m. pl.) sat down.’
(hunnajalasna).	(hum jalasum).	(hinjilsayn).	‘They (3rd.p.f.pl.) sat down.’

Tables 2 and 3 raisea very legitimate question: Are there rules for vowel deletion occurrence in past tense verbs in ADY? If the answer is “YES”, aresub-case markers (diacritics) involved? Regarding the first part of the question, the answer is “YES”. In ADY (except AD), verbs like (li‘ib), ‘played’, (shirib), ‘drank’, (sim‘i), ‘heard’, etc., are inflectionally conjugated in the same way. Compare:

Table 4. Pronoun-verb (past form) agreement in ADY except AD (Verbs ‘li‘ib’, ‘shirib’, and ‘simi‘i’ types)

Verbs Conjugated in ADYexceptAD	Meaning
(huli‘ib/ shirib/sim‘i).	‘He played/drank/ heard.’
(hīl‘ibat /shirbat/sim‘at).	‘It/ She played/ drank, heard.’
(anāli‘ibt/ shiribt/simi‘it).	‘I played/ drank/ heard.’
(iḥnāli‘ibnā/shiribnā/simi‘inā).	‘We played/drank/heard.’
(ant (ah) li‘ibt (ah)/ shiribt(ah)/simi‘it (ah)).	‘You (2nd.p.m.s.) played/ drank, heard.’
(antīli’ibtī/shiribtī/simi’tī)	‘You(2nd.p.f.s.)played/drank/heard.’
(antūli‘ibtū/ shiribtū/simi‘itū).	‘You (dual and plural m. in ADY) played/ drank/ heard.’
(antaynli‘ibtayn/ shiribtayn/ simi‘itayn).	‘You (dual and plural f. in ADY) played, drank, heard.’

(hum l‘ibū/ shirbū/ sim‘ū).	‘They (3rd p.m. pl.) played/ drank/ heard.’
(hinl‘ibayn/shirbayn/ sim‘ayn).	‘They (3rd. P.f.pl) played/ drank/ heard.’

This can be observed in the speech of all group subjects (except subjects 26 and 27 of Aden group) when they said: (shirbayn), ‘ They (animals) drank’, (sim‘ayn), ‘ They (animals) heard’, (shirbaynah), ‘ They (girls) drank it (juice), (shirbūh), ‘ They (the man and the boy) drank it (water)’,(l‘ibū), ‘ They (Two teams) played’, and (l‘ibat) ‘ It (KSA team) played.’ Unlike subjects of Dhamar group who have pronounced these verbs in the same way, Ibb group subjects uttered them either slightly differently: twosubjects with low deletion and other subjects with high deletion. Again, the former way of pronunciation (low deletion) can be seen in the utterances of S.6 and S.7, namely, with the verbs (shirib), ‘ drank’ when they said: (shiribah al-wilayd), ‘It was drunk (water) by the boy.’, (shiribatah al-binayah), ‘It was drunk (juice) by the girl.’, and (shiribaynuh al-banāt), ‘It was drunk (juice) by the girls.

As it is just mentioned, Ibb group, namely, S.8 and S.9 showed high deletion, but not the target vowels (shiribatah), ‘drank it’. The deletion occurred in the last syllable (shiribtuh) resulting in creating a consonant cluster of the phonemes ‘b’ and ‘t’ along with anew short vowel /U/ to the word. This new vowel, by the way, exists in SA,butin a form of ashortvowel/æ/. However, the second vowel in the middle syllables (the /ɪ/ sound before the phoneme ‘b’ is marked as low deleted vowel. This shows that in Ibbi dialect, there is another type of deletion, that is, the deletion of theshort vowel inthe last syllable and this is limited to 3rd. p.f.s. This can be examined in light of the utterances of Ibb group when they said: (shiribtuh al-bint), ‘It was drunk (juice) by the girl.’ The same characteristic applies to the subjects of Taiz group and this can be clearly seen in the utterance of S. 12 and S.13.Compare:

Table 5. Ibbi and Taizi dialects and SA: Comparison (Verb ‘shirib’ type)

SA	Ibbi and Taizi dialects	Meaning
(sharibath)	shiribtuh	She (the girl in the picture of the given data) drank it (the juice).

However, subjects of Taiz group showed lowvoweldeletion with other short vowels, namely, the second vowel of the middle syllable; therefore, they share subjects of Ibb group, and this is, perhaps, because the two cities are close to each other. In fact, lowvoweldeletionincludes S.16of Hodeida group and this can be seen in almost all the verbs he used (shiriban, simi‘an, li‘ibat), etc.

Amazingly, Subjects of Hadramout group, namely, S.21 and S.22 showed vowel deletion close to those of allsubjectsofothergroups except thoseofIbb,Taiz,andAden groups.

TheyalsoshowedaccordancewithSAaswellaswithADinthewaythefirstvowelinthefirstsyllableis pronounced,i.e.,/æ/ instead of /ɪ/. This characteristic, by the way, is also observed in the utterances of S.19 andS.20 of Al-BaydhaandMaribgroups respectively. The researchers think that this is because of the influence of Arabic dialect of Hijaz on Hadramout people as Hadramout is, geographically speaking, close to the KSA (on the borders). Hadramoutis also close to Mareb and Al-Baydha (all ofthemareintheeasternparts of Yemen) and Aden (onthebordersofHadramoutfromthesouthwest). However, the only difference between these dialects (Hadramout, Marib, Al-Baydha, and Aden dialectsfrom one side and Hijazi dialect from the other side) is in the way the diphthongsoundinthelast syllable is pronounced, such that in theHijazi dialect,itispronouncedas/au/,while in Hadramoutdialect,itispronouncedasa longvowel/u:/.

In fact, the vowel deletion observed in the utterances of the subjects of Hadramout, Marib and Al-Baydha groups reveal two important facts: The first fact is related to the type of this vowelinthelastsyllable, and the second one is connected to the subject pronoun with which this new preceded sound goes. For better clarification of this fact, it should be returned to the utterances of the subjects wherein we find two types of sounds occupy the final syllable; the first type is the diphthong /aɪ/ e.g. (shirbayna/uh), 'They (women in the pictures) drank it (water) ', etc. and thiscan be seen in the utterances of all subjects of the groups except S.26 and S. 27 (Aden group).The second type is the long vowel /u: / e.g. (shirbūh), 'They (boys in the pictures) drank it (water),' almost uttered by all subjectsinthesameway,exceptwithSana'a groupwhereinsubjects16and18ofithavepronounceditas/au/.

The second fact as we have just mentioned is correlated with the subject pronouns wherein we need to know with which pronoun this new preceded sound (be it a diphthongs or a long vowel) matches. Again, when we listen to the utterances of the subjects, it is found that this feature only occurs with certain subject pronouns. Specifically, these pronouns are 3rd. p.m. pl. e.g., (shirbūh), 'they (the man and the boy) drank it (water),' and 3rd. P.f.pl. e.g., (sim'ayn), 'they (zebras) heard.' This rule is nearly applied to all Yemeni dialects under the question. Aden groupdid not show any vowel deletion to the verbs. The only deletion observed by the subjects of this groupis in the overt infinitive (l'ibah), 'game', in the utterance of S. 26.

2.2 Results of Vowel Deletion

In this section, we will examine some of the issues raised in the aims of this study like the type of vowels deleted in ADY and its relationship with consonant cluster in the syllable wherein it occurs, etc., andthe answer to such a questionis that vowel deletion in most ADY goes with short vowels (sub-case markers). However, this can be obviously seen in the utterances ofthe subjects at hand, namely, subjects of Dhamar, Ibb, Sana'a, Taiz and Hodeida groups. Compare:

Table 6. Type of vowels deleted. SA and ADY (except AD): Comparison. (Verb 'shariba' type)

SA	ADY except AD	Meaning
(sharibat)	(shirbat)	'She(3rd.p.f.s.) drank.'
(sharibū)	(shirbū)	'They (3rd.p.m.pl.) i.e. boys drank.'
(sharibna)	(shirbayn)	'They (3rd.p.f.pl.) i.e. zebras and elephants) drank.'

As can be seen in the table, the underlined sounds in the first column refer to the sub-case markers (short vowels) in SA. When the verb is changed into ADY, the result is that the secondshort vowel /ɪ/ is deleted and the deletion in this vowel in particular applies to all Yemeni dialects except Ibbi and Taizi dialects (that are marked by low vowel deletion) and AD(that is marked by no vowel deletion). This undoubtedly means that deletion in ADY is restricted to short vowels. With reference to the second part of the question, the answer is "YES."It is admissible as it is clear in the above mentioned table, but it is restricted to 3rd. p. f. s., 3rd.p.m.pl, and 3rd.p.f.pl, as can be seen in the underlined phonemes.

Notice here that the short vowel /æ/ at the end of the verb (sharibna), 'they (3rd.p.f.pl.) drank.' is also deleted in ADY and substituted by a diphthong sound /aɪ/.As a matter of fact, all verbs of past tense form in SA are marked by a short vowel /æ/ if the verb is not preceded by a jussive particle and/or is not ended in a vowel sound. However, this short vowel at the end of the verb in the past form has three cases:

1- In SA it has to be orthographically and orally mentioned.

2- In MSA, it should be orally mentioned, but it is necessarily written.

3- In ADY, it is deleted.

It should be noted here that the above mentioned rule is only applied when we use the verb with 3rd. p. s. m. pronoun. This means that if we derive the verb with other subject pronouns, the rule is not applicable. A question puts itself here: Is this rule of short vowel /æ/ at the end of the past tense verb applicable to other grammatical items? The answer is 'Yes.'It can be applied to some grammatical items, but we will mention here one of them, that is, the pronouns, as they are directly related to issues concerning vowel deletion both in SA and ADY.

In SA, pronouns mustend in short vowel sounds if they are not ended in long vowel sounds. Note here that we did not mention the precedence of the jussive particle, because jussive particles do not precede pronouns. (They only precede verbs). Of course, the above three mentioned cases of verbs should be considered here.Pronouns that meet the condition of SA are (hua), 'He,' (hia), 'She,' (anta/i), 'You (2nd. P. m/f. s.),' (antonna), 'You'(2nd. P.

f.pl.),'(naḫnu), 'We,' and (hunna), 'They (3rd.p.f.pl.). These pronouns along with the above mentioned verbs can be illustrated as follows: Compare:

Table 7. Short vowel deletion in pronouns of SA and ADY: Comparison

SA	ADY	Meaning	Notes
(huaFahima)	(huFihim)	' He understood'	
(hiaFahimat)	(hi Fihmat)	'She understood'	Since the verb is in 3rd.p.f.s, it shows a short vowel deletion as usual.
(antafahimta)	(ant fihimt)	'You (2nd. P. m. s.)understand?'	
(antonnafahimtonna)	(antaynfihimtayn)	'You (2nd. P. f. pl.)understand?'	The last short vowel in SA verb is changed into a diphthong sound /aɪ/ in ADY.
(naḫnuFahimnā)	(iḫnāfihimnā)	'We understood.'	
(hunnafahimna)	(hinfihmayn)	'They understood.'	The last short vowel in SA verb is changed into a diphthong sound /aɪ/ in ADY. Since the verb is in 3rd.p.f.pl, it shows a short vowel deletion as usual.

Of course, consonant cluster, as well as middle vowel deletion, occurs(except in Ibbi,Taizi, and Adeni dialects) when we derive these verbs with 3rd. p. f. s., 3rd.p.m.pl, and 3rd.p.f.pl and this is explained in Tables 3, 4,6, 8, and 11. Again, this rule is limited to these pronouns when they are used in the past tense form like (jils +at/ ayn/ū), 'sat', (jiz+'at/ 'ayn/'ū), 'left', liqt+at/ayn/ū), 'picked up', (sim+ 'at/ayn/ū), 'heard' and the like. This new consonant cluster is brought to the surface as a result of vowel deletion that occurs between the phonemes 'l'and's' in the verb (jilis), 'Sat', the phonemes 'z'and 'a' in the verb (jizi'a), 'left', the phonemes 'q'and't' in the verb (liqit), ' picked up', and the phonemes 'm' and 's' in the verb (simi'a), 'heard'. It does not exist in SA of course since (fatḫah), 'a short vowel that ends with an/ʌ/ sound' must be orally and orthographically mentioned between the phonemes 'l'and's', 'z' and 'a', 'q' and 't,' and 'm' respectively.

Furthermore, wherever (kasrah), ‘a short vowel that ends with an /ɪ/ sound’ stands, the close syllable affects the process of derivative suffixes directly. Again, this can be clearly observed by comparing the verb in the form of 3rd. p.s.m with other forms. All in all, when accounting for the two answers, a generalization on ADY ought to be made between verbs in the past tense form when we use them with 3rd. p.f. s, 3rd. p.m.pl, and 3rd. p.f.pl.subject pronouns. This generalizability determines that in the syllabic structure of the past verb starting with a consonant sound that is characterized by a sub-case marker (kasrah), ‘a short vowel that ends with an /ɪ/ sound’ (except for AD wherein it is pronounced as (fathah), ‘a short vowelthat ends with an /ʌ/ sound’), the second vowel must be /ɪ/ sound and this /ɪ/ is deleted when we add an inflectional suffix to it. Consider:

(jilis), CVCVC ‘He sat down.’

(jils+ at) = (Jilsat) CVCCVC ‘She sat down.’

Moreover, we can say that, in the short open syllabic structures, the rule of high vowel deletion deletes the one of short vowels. Compare:

Table 8. Short open syllable and relationship with high and low vowel deletion both in SA and ADY (Verb ‘jalasa’ type)

SA	ADY except AD	Meaning
(jalasa)	(jilis)	‘He sat down.’
(jalas+at)	(jilsat)	‘She sat down.’
(jalasna)	(jilsayn)	‘They (3rd.p.f.pl.) sat down.’
(jalasū)	(jilsū)	‘They (3rd.p.m.pl.) sat down.’

When applying to consonant clusters, the rule of “similarity” between SA and ADYcomes to existence. This rule can be examined through the second and third examples mentioned above where in the ADY (except AD), the consonant cluster occurs in the middle: (jilsat), ‘She sat down’, while it occurs at the end (final) syllable of the SA verb: (jalasna), ‘They (women) sat down’. In fact, we do not want to go far from what is aimed by this paper; otherwise, we will discuss vowel lengthening, too. Compare:

Table 9.Vowel Lengthening in SA and ADY (Verb ji/alas type)

SA	ADY	Meaning
(jalasna)	(ji/alsayn).	‘They (3rd. p. f. Pl.) sat down.’

We can also conclude by saying that except for AD, the short vowel /æ/ in SA is substituted by the ADY short vowel /ɪ / if two conditions are met:

1- The second vowel is deleted,e.g., jalasat (SA) ⟶ jilsat (ADY).

2- The syllable is close. This rule, however, is delimited to verbs; rather, it expands to include nouns, overt/explicit infinitive, and some other grammatical items in SA and ADY. This can be illustrated in view of SA. Compare:

Table 10.Applications of close syllable in SA and ADY (li‘ib type)

SA	ADY	Meaning
(la‘iba)	(li‘ib)	‘He played.’
(la‘ib/ lu’bah)	(li’b/l‘abah)	‘Play/game.’
(la‘ibuh)	(li’bih)	‘His play.’

The researchers think that the reason behind involving explicit infinitive and nouns (especially those used with possessive adjective pronouns in the case of 3rd p. f.s.) is that most Yemeni people are indirectly influenced by SA by making a wrong analogy. Put it in another way, they think that such words, especially disyllabic ones in their own dialects, can be compared to those of SA e.g., (su’d), ‘pleasant’ ⟶ (su‘aduhā) (SA), ‘Her pleasure’ = (s ‘id) ⟶ (s ‘idha) (ADY) and(l ‘ib), ‘Play’ (ADY) ⟶ (l ‘ibhā), ‘Her play’).

Unlike Irshied (1990) who suggested three phonological processes for discussing vowel alternations (High vowel deletion, low vowel deletion and rising), here, we only suggest two types of deletion for discussing vowel deletion of ADY except AD (according to the degree of deletion). These two types are: Low vowel deletionin the case of 3rd. p.m.s(and also 3rd.p.f.s. in Taiz and some parts of Ibb dialects) in the past and high vowel deletion in the case of 3rd. p. f. s, 3rd. p.m.pl. and 3rd. p.f.pl. in the past also. Compare:

Table 11. Low and high vowel deletion in SA and ADY: Comparison (Verbs ‘shirib’, ‘fihim’, ‘siḥib’, and ‘sihir’ types)

SA	ADY (Low Vowel Deletion)	Meaning	ADY (High Vowel Deletion)	Meaning
(shariba)	(shirib)	‘He drank.’	(shirbat)	‘She drank.’
(fahima)	(fihim)	‘He understood’	(fihmat)	‘She understood.’

(saḥibū)	(siḥibū)	'They (3rd. p.m. pl.) withdrew (money from a bank, etc.).'	(siḥbū)	'They (3rd. p.m. pl.) withdrew (money from a bank, etc.).'
(sahirna)	(sihirayn)	'They (3rd.p.f.pl.) woke.'	(sihrayn)	'They (3rd.p.f.pl.) woke.'

Simply speaking, depending upon what subject pronoun is used, one can easily develop the rule of deletion. The second short vowel /ɪ/ is lengthened if low vowel deletion is applied first. However, if we do not want to lengthen it, in that case, high vowel deletion rule has to be applied before we start the process of low vowel deletion. It also depends upon whether the second vowel of the stem is /ɪ/ or /æ/. Last, but not the least, it is clear now that phonological rules derived from forms can be understood by morphological ones.

2.3 ADY and OT

Optimality Theory (OT is a linguistic rule-based model/ framework that was developed by Prince and Smolensky in 1993. The theory proposes that observed forms arisen in language are results of interaction between conflicting constraints (inputs and outputs). Unlike SA that has only six vowels, ADY have ten vowels, two of which are diphthongs /aɪ/ and /au/, and two are long vowels /u: / and /i: /. In that sense, it can be said that ADYcontradicts the prediction of OT in two issues: The first one is linked with the output which is proven to be different both from the epenthesis as well as the deletion, and this, in turn, supports the study of Bushra who, in 1997, examined the Sudanese and Cairene dialects in addition to that of Muscat. She studied them in light of OT. Bushra's findings can be clearly seen in her statement when she boldly stated:

"The prediction of Optimality Theory that the output for the epenthesis and syncope should be the same was not supported by Cairene or Sudanese Arabic. It was supported only by Muscat Arabic. (Eid&Ratcliffe, 1997, P.211).

The second issue is related to the diphthong sounds that are found to be the distinctive feature of ADY and this supports Hamid's (1984) study that proved that central Sudanese dialects and Cairene dialect have these two diphthongs, too. Hence, we can determine that there is a similarity between ADY and those of the central Sudanese dialects and Cairene's in the former two sounds (diphthongs). In fact, researchers think that this is because of the immigration of tribes in the past; therefore, one needs to involve the etymology in such research.This is perhaps what motivated some researchers who decided to trace the historical developments of both Egyptian and Sudanese dialects , for example, to see what conclusions can be drawn from them (Owens, 2003).

3. Conclusion

Vowel deletion is a phonological phenomenon that occurs in many languages and/or dialects across the world. However, Arabic dialects are not an exception. Research on how vowels are deleted have shown that many Arabic dialects have this phonological phenomenon in them e.g., Moroccan dialects (Singer, 1980), Sudanese dialects, Cairene dialect, and dialect of Muscat (Hamid, 1984; Bushra, 1997), Sana'ani dialect (Watson, 2002), YemenTihami dialect (Al-Shuaibi, &Kassin, (2010), Egyptianand Levantine dialects (MacMillan, 2011), etc. This study aimed at discussing vowel deletion in all ADY since no research has discussed such an issue.

The study revealed that there is a vowel deletion observed in the speech of most local Yemeni people when compared with SA. Yemenis tend to delete short vowels when they use certain verbs in the past tense form.As a matter of fact, there are three short vowels that Yemenis delete from the verbs of past form in more than one syllable: Two in the middle syllable and thethird is in the last syllable. However, the last short vowel is commonly deleted by all Yemeni people. We concentrated more on the two short vowels deleted in the middle syllable. This deletion is resulted from a consonant cluster and it can be high or low.

Moreover, this deletion is delimited to verbs; rather, it expands to include nouns, and overt infinitive. The researchers point out that it may be accounted for because of the influence of SA by making a false analogy to some words like (s'ud), pleasure' and (l'ib), 'play' types. This deletion is, however, restricted to certain subject pronouns. Specifically, these pronouns are 3rd.p.f.s. e.g., (shirbat), 'She drank, 3rd. p.f.pl.e.g., (jilsayn),' they sat down, 3rd. p.m.pl. e.g.,(liqtūhā), 'They picked it up.' Low vowel deletionalso exists in ADY, namely, in Taizi dialect and some parts of Ibb dialect wherein we find people from these two cities (central parts of Yemen) use it, namely,in 3rd.p.f.s. e.g.,(shiribtuh), 'She drank it,' thereby, creating a new consonant cluster. However, overt/ explicit infinitive e.g., (l'ib), 'Play), and possessive adjective pronouns e.g., (l'ibih), 'His play' have shown a high vowel deletion withall subject pronouns.

The result of vowel deletion in ADY istwo new diphthong sounds that are/aɪ/ (Central, northern, and western dialects) and /au/ (Northern dialects) and two long vowels sound /u: /and /i: / (Eastern and southern dialects). This phonotactic feature in ADY is one of the findings that is found when the utterances of the subjects are examined. These findings, however, confirmedthe results of Hamid's study in 1984. Moreover, this study contradicted with OT in matters concerning output prediction which means that it supportedBushra's study in 1997. However, the table below summarizes some of the above mentioned findings:

Table 12. High, low and no vowel deletion rules in SA and ADY: Comparison

Items	High Vowel Deletion	Low Vowel Deletion	No Vowel Deletion
SA	1- It occurs only if the verb is preceded by an accusative or ajussive item/particle. 2- It is only applied to long vowels /a: /, /u: / and /i: /, overt infinitive and possessive pronouns. 3- It extends to include the consonant phoneme 'N' if the verb is one of the 'Five Verbs'. 4- If the verb ends with a consonant preceded by a long vowel, this long vowel is replaced by a short vowel (sub-case marker). 5- A consonant cluster is resulted from a vowel deletion.		In SA, if the verb is not preceded by an accusative or ajussive item, then, no vowel deletion rule is applicable.
Items	High Vowel Deletion	Low Vowel Deletion	No Vowel Deletion

ADY	Eastern Dialects	1- It is limited to short vowels (sub-case markers), overt infinitive and possessive pronouns. 2- If the first vowel in SA is /æ/, it remains æ/ i.e. without any change in these dialects. 3- It occurs whether the verb is preceded by an accusative, jussive particles or not. 4- It results from a consonant cluster. 5- Dialects of this type are marked by long vowels /i: / and /u: / in the last syllable. 6- A short vowel /æ/ at the end of the verb in SA is always deleted in these dialects, and it is also deleted in 3rd.p.m.s, 3rd.p.f.s, 2nd.p.m.s. and 3rd.p.f.pl. 7- A short vowel /ɪ/ in 2nd.p.f.spronoun in SA is deleted at the end of the word and substituted by a long vowel /i: /. Likewise, a short vowel /i:/ at the end of 2nd.p.f.pl. is deleted and substituted by a diphthong sound /aɪ/ in the last syllable. 8- Examples of this type of dialects are Hadramout, Al-Baydha, and Marib dialects.		

	Western Dialects	1- It is limited to short vowels (sub-case markers), overt infinitive and possessive pronouns. 2- If the first vowel in SA is/æ/, it is changed into /ɪ/ in these dialects. 3- It occurs in these dialects regardless whether the rules of accusation or deletion are applicable or not. 4- It results from a consonant cluster. 5- These dialects are characterized by the long vowel /u: / and the diphthong sound/aɪ/ in the last syllable. 6- A short vowel /æ/ at the end of the verb in SA is always deleted in these dialects, and it is also deleted in 3rd.p.m.s, 3rd.p.f.s, 2ndp.m.s. and 3rd.p.f.pl. 7- A short vowel /ɪ/ in 2nd.p.f.spronoun in SA is deleted at the end of the word and substituted by a long vowel /i: /. Likewise, a short vowel /æ/ at the end of 2nd.p.f.pl. is deleted and substituted by a diphthong sound /aɪ/ in the last syllable. 8- An example of this type of dialects is Hodeida dialect.		

	Central Dialects	1- It is limited to short vowels (sub-case markers), overt infinitive and possessive pronouns. 2- Like western dialects, if the first vowel in SA is/æ/, it is changed into /ɪ/ in these dialects. 3- It occurs to the second vowel in these dialects regardless whether the rules of accusation or deletion are applicable or not. 4- It results from a consonant cluster. 5- Dialects of this type are characterized by the long vowel /u: / and diphthong sound /aɪ/ in the last syllable. 6- A short vowel /æ/ at the end of the verb in SA is always deleted in these dialects, and it is also deleted in 3rd.p.m.s, 3rd.p.f.s, 2nd p.m.s.and 3rd.p.f.pl. 7- A short vowel /ɪ/ in 2nd.p.f.s. pronounin SA is deleted at the end of the word and substituted by a long vowel /i: /. Likewise, a short vowel /æ/ at the end of 2nd.p.f.pl. is deleted and substituted by a diphthong sound /aɪ/ in the last syllable. 8- An example of this type of dialects is Dhamar dialect and some parts of Ibb city (parts that are close to Dhamar city).	1- It is limited to short vowels (sub-case markers), overt infinitive and possessive pronouns. 2- Like western and some other central dialects, if the first vowel in SA is/æ/, it is changed into /ɪ/ in these dialects. 3- It occurs in the second vowel of the verbs in these dialects regardless whether the rules of accusation or deletion are applicable or not. 4- The new vowel deletion creates a consonant cluster in the last syllable. 5- Dialects of this type are characterized by long vowel /u: / and diphthong sound /aɪ/ in the last syllable. 6- A short vowel /æ/ at the end of the verb in SA is always deleted in these dialects, and it is also deleted in 3rd.p.m.s, 3rd.p.f.s,2ndp.m.s. and 3rd.p.f.pl. 7- A short vowel /ɪ/ in 2nd.p.f.s. pronounin SA is deleted at the end of the word and substituted by a long vowel /i: /. Likewise, a short vowel /æ/ at the end of 2nd.p.f.pl. is deleted and substituted by a diphthong sound /aɪ/ in the last syllable. 8- An example of this type of dialects is Taiz dialect and some parts of Ibb city (parts that are close to Taiz city).	

	Northern Dialects	1- It is limited to short vowels (sub-case markers), overt infinitive and possessive pronouns. 2- Like western dialects, and some other central dialects, if the first vowel in SA is/æ/, it is changed into /ɪ/ in these dialects. 3- It occurs in these dialects regardless whether the rules of accusation or deletion are applicable or not. 4- It results from a consonant cluster. 5- Dialects of this type are characterized bydiphthong sounds /aɪ/ and /au/ in the last syllable. 6- A short vowel /æ/ at the end of the verb in SA is always deleted in these dialects, and it is also deleted in 3rd.p.m.s, 3rd.p.f.s, 2ndp.m.s. and 3rd.p.f.pl. 7- A short vowel /ɪ/ in 2nd.p.f.spronoun in SA is deleted at the end of the word and substituted by a long vowel /i: /. Likewise, a short vowel /æ/ at the end of 2nd.p.f.pl. is deleted and substituted by a diphthong sound /aɪ/ in the last syllable. 8- An example of this type of dialects is Sana'a dialect.		

	Southern Dialects			1- It is limited to short vowels (sub-case markers), overt infinitive and possessive pronouns. 2- Like eastern dialects, if the first vowel in SA is /æ/, it remains /æ/ in these dialects i.e. without any change. 3- No vowel deletion is registered in these dialects no matter what item (accusative or deletion) precedes the verb. 4- It results from a consonant cluster. 5- Dialects of this type are marked by long vowels /u: / and /i: / in the last syllable. 6- A short vowel /æ/ at the end of the verb in SA is always deleted in these dialects, and it is also deleted in 3rd.p.m.s, 3rd.p.f.s, 2nd p.m.s. and 3rd.p.f.pl. 7- A short vowel /ɪ/ in 2nd.p.f.spronoun in SA is deleted at the end of the word and substituted by a long vowel /i: /. Likewise, a short vowel /æ/ at the end of 2nd.p.f.pl. is deleted and substituted by a diphthong sound /aɪ/ in the last syllable. 8- An example of this type of dialects is Aden dialect.

As can be seen in Table 12, the phonological rules which map the underlying representations onto the surface representations are caused by alternations in vowels, notably short vowels in ADY. Some of these rules, especially those related to low vowel deletion, must apply before some morphological rules. /i: / cannot be deleted by high vowel deletion. This occurs if it is introduced by another rule and this rule, in turn, applies after high vowel deletion.

In response to these findings, we can add that there is no cause/effect relationship between vowel deletion and other processes of consonants' segmentation and/or those of syllabification. In detail, neither consonant sounds (voiced/voiceless) occurred before nor vowels - (short/long) occurred after causal vowel deletion as one may assume. The reason, quite simply, is that this is due to several changes related to history, geography, and people who tend to compare their dialect(s) with SA using wrong analogy. We cannot also deny or ignore other phonological, morphological, syntactic and even semantic changes. In other words, there are a number of grammatical rules including prefixes and suffixes of the verbsthat are linked with deletion of a stem-middle vowel.

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Glossary

1st. p. m. s. = First Person Masculine Singular.

2nd. p. f. pl. = Second Person Feminine Plural.

2nd. p. f. s. = Second Person Feminine Singular.

2nd. p. m. pl. = Second Person Masculine Plural.

2nd. p. m. s. = Second Person Masculine Singular.

3rd. p. f. pl. = Third Person Feminine Plural.

3rd. p. f. s = Third Person Feminine Singular.

3rd.p.f.pl. = Third Person Masculine Plural.

3rd. p. m. pl. = Third Person Masculine Plural.

AD= Aden Dialect.

ADY=Arabic Dialects of Yemen.

N= Number.

OT= Optimality Theory.

S= Subject: A participant/case who has been taken in this study as a sample.

SA= Standard Arabic