THE CORRELATION BETWEEN SHORT VOWEL SUBSYSTEM AND LONG VOWEL SYSTEM IN THE MODERN MAGHRIBI DIALECTS (YODA)

YODA Sumikazu*

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要 約
現代マグリブ方言における短母音下位システムと
長母音体系との関係

依 田 純 和

現代アラビア語方言を分類する場合、必ずしも実際の生活形態と一致するものではないが、「定住民方言」と「遊牧民方言」とに分類する方法がある。一般的には古典アラビア語のqāfが定住民方言は無声音で、遊牧民方言は有声音で実現される。Cohen (1970)は北アフリカの諸方言の短母音体系を観察し、定住民方言は/a:/ /non−u/、遊牧民方言は/a:/ /non−a/という短母音下位システムを持っていることを示唆している。一方長母音に目を向けると古典語の二重母音が長母音化している場合、遊牧民方言は5長母音体系、定住民方言は3長母音体系を持っていることがわかる。このことから5長母音体系と/a:/ /non−a/短母音下位システム、3長母音体系と/u:/ /non−u/短母音下位システムはそれぞれ密接に関係があるように見える。北アフリカでは短母音音素の数が1（Algiers-Jewish）、2（Tunis-Jewish）、3（Tunis-Muslim, Marāzīg）、4（Maltese, Hassaniya）など方言により様々であるが、本研究では各方言で観察しうる短母音の中和現象から、Cohenの提唱した下位システムがそれぞれの方言の短母音音素の数に関わり無く存在することを示し、またこの下位システムが古典アラビア語の二重母音の長母音化の課程にどのように影響を与えるかを明らかにする。

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I. INTRODUCTION

1. The aim of the study

The aim of this study is to demonstrate the correlation between different short vowel systems and long vowel systems attested in modern Maghribi dialects through diachronical analysis of diphthongs originated from Classical Arabic\(^2\).

In the domain of Arabic linguistics, there are two ways to classify modern Arabic dialects; (1) Geographical division; Western (Maghrib) and Eastern (Mashriq) dialect groups (2) Social division; Sedentary and Bedouin dialect groups. For the second division, the most conspicuous criterion for the distinction is the pronunciation of “qāf” (voiced variants for the bedouin dialects and voiceless variants for the sedentary ones)\(^3\).

When we restrict the domain to the Maghribi area, there exists another possible criterion for the bedouin-sedentary distinction which consists of two different short vowel systems. According to Fischer-Jastrow (1980) pp. 248-249, the predominant number of Maghribi dialects have a short vowel system of two phonemes which can be divided into two types.

(A) \(\varepsilon : \iota\) (\(\varepsilon\) goes back to ancient \(\alpha\), \(\iota\)): Casablanca, Tanger, Tlemcen, Tunis-Jewish, Algiers-Jewish and Djidjelli (sedentary dialects)\(^4\).

(B) \(\alpha : \varepsilon\) (\(\alpha\) goes back to ancient \(\iota\), \(\varepsilon\)): Hassaniya, Mzāb, Saida and Benghazi (bedouin dialects)\(^5\).

This classification should be originally attributed to Cohen (1970) pp. 176-177, but his classification has a different significance. Fischer-Jastrow simply listed the dialects of two short vowel phonemes. Whilst Cohen classified also those dialects of three short vowel phonemes; Tunis-Muslim into (A), and Marāzīg, El-Ḩāmma and Ulād Brāhīm into (B). He did so because his purpose was to find the principles of unity in the short vowel systems of the Maghribi dialects from the apparent diversity. He reached the following conclusion after closely analyzing the phenomena of neutralization of short vowel: “les dialectes maghrébins examinés... n’ont pas permis de déceler d’autres types que ceux qui viennent d’être caractérisés”\(^6\), namely
(A) and (B). This means that two types of short vowel systems govern, as subsystems, even those dialects which have more than three short vowel phonemes. The concept of "subsystem" may be very useful to explain the neutralization of the vowel opposition that occurs in the modern Arabic dialects. Thus we can say that a dialect where the opposition /i:/ /u/ is frequently neutralized comes under the influence of subsystem (B), which is attested not only among Maghribi dialects but also among Mashriq dialects(7). In the Maghribi area El-Ḥamma is a good example to observe the function of the subsystem. This dialect has indeed three short vowel phonemes /a/, /i/ and /u/, but sometimes /i/ and /u/ are free or combinatorial variants of an archiphoneme "closed vowel"(8), and from this fact Cantineau (1951) pp. 83–84 states "le parler d'El-Ḥamma tend vers un état de choses où deux phonèmes seulement seraient distingués dans les voyelles entravées brèves: un phonème ouvert /a/ et un phonème fermé qu'on appellerait /ə/....". On the other hand, the attestation to the subsystem of dialects classified as (A) is rather complex. Tunis-Muslim distinguishes three short vowel phonemes /a/, /i/ and /u/ as El-Ḥamma. In this dialect not only the opposition /a:/ /i/ tends to be neutralized in certain positions, but the opposition /i:/ /u/ can also be neutralized in other positions. Singer (1984) pp. 72–82 demonstrates how short vowels of this dialect are neutralized by creating two subsystems of short vowel phoneme /a/://ə (=i/u)/// and /u/: //ə (=a/i)//. As to Algiers-Jewish, Cohen (1970) p. 177 assumes that it is a particular case of system (B), due to its linguistic similarity to other sedentary dialects.

The long vowel system of the Maghribi dialects can also be classified into two types; (1) three long vowels system, (2) five long vowels system. In the majority of the Maghribi dialects the diphthongs of Classical Arabic generally correspond to the long vowels (/ay/ > /e/ or /i/, /aw/ > /o/ or /ū/). It is a clear tendency that /ay/ and /aw/ of Classical Arabic, when they are monophthongized, are realized as /i/ and /ū/ for sedentary dialects, and as /e/ and /o/ in bedouin dialects(9).

Through examination of the above phenomena, the following coherent relationship between the bedouin-sedentary distinction and the vowel systems became clear: (I) bedouin dialects—short vowel subsystem a :ə (AS, = /a/-subsystem, and so forth)—five long vowels system (5LVS and so forth). (II) sedentary dialects—short vowel subsystem ə :u (US, = /u/-subsystem, and so forth)—three long vowels system (3LVS and so forth).
Here arises the question; is the relation between two factors adventitious? If not, what relates them? As far as I know, no attempt to establish bedouin-AS-5LVS relation and sedentary-US-3LVS relation has been carried out until now. However it seems reasonable to suppose that the long and short vowel systems should interact with each other to a great extent, as long as the vowels, be they short or long, consist of a phonological group opposing the consonants. In this paper, the following questions will be addressed;

(1) Definition of vowel phonemes of dialects.
(2) Confirmation of “subsystems” through the analysis of the neutralization of vowel opposition.
(3) Explanation of the correlation between the short vowel systems and the long vowel systems.

2. Vowel elements which we are not concerned in this study.

2.1. In the word final position

2.1.1. Feminine ending

In all the Maghribi dialects addressed with in this study, the feminine ending which is realized with [-a] or with its variants ([-ā, -ā, -e] etc. according to the consonant environment) in the posal position has an allomorph with a final [-Vt] in status constructus. This implies that the form with [-Vt] is the underlying form of the feminine ending. Therefore we do not consider the feminine ending [-a] as a “pure” short vowel element to exclude it from the scope of this study.

2.1.2. Other vowel elements in the word final position

Cohen (1975) p. 53 states that “toute voyelle longue qui ne se trouve pas sous l’accent est réalisée plus brève”. The same statements are given in many dialectological works. The fact that this vowel is lengthened when any suffix is attached to it allows us to treat it as an allophone of a long vowel phoneme in a word boundary.

Tunis-Muslim:
/CLUDUB/ = [CLUDUB] “they brought”
/CLUDUBA/ = [CLUDUBA] “they brought (f.)”

In addition to the feminine ending, apparent short vowels in the word final position
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are not considered as "pure" short vowel elements to exclude them from the scope of this study.

2.2. Other cases

Vowel elements in following cases will not be addressed.

(1) Segolized vowel, namely a short vowel (sometimes a ultra short vowel) inserted between the consonant cluster of the word final boundary\(^{11}\). Normally it has no functional value\(^{12}\).

(2) Conjugational prefix of verbs: In almost all the Maghribi dialects the vowel of the conjugational prefix does not have autonomous phonological value but assimilates its timbre to the stem vowel\(^{13}\).

3. The dialects discussed in this study

Among the fourteen dialects mentioned in I-1. six dialects were chosen for this study considering the following points: (1) existence of sufficient materials, (2) geographical extent, (3) proportion between sedentary and bedouin dialects, (4) number of short vowel phonemes.

<table>
<thead>
<tr>
<th>Dialect</th>
<th>Area</th>
<th>Number of short vowel</th>
<th>Number of long vowel</th>
<th>Dialect type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marazig</td>
<td>South Tunisia</td>
<td>3</td>
<td>5</td>
<td>bedouin</td>
</tr>
<tr>
<td>Cyrenaica</td>
<td>East Libya</td>
<td>3</td>
<td>5</td>
<td>bedouin</td>
</tr>
<tr>
<td>Hassaniya</td>
<td>Mauritania</td>
<td>4(2)</td>
<td>3</td>
<td>bedouin</td>
</tr>
<tr>
<td>Tunis-Muslim</td>
<td>Tunis</td>
<td>3</td>
<td>3</td>
<td>sedentary</td>
</tr>
<tr>
<td>Tunis-Jewish</td>
<td>Tunis</td>
<td>3(2)</td>
<td>3</td>
<td>sedentary</td>
</tr>
<tr>
<td>Algiers-Jewish</td>
<td>Algiers</td>
<td>1</td>
<td>3</td>
<td>sedentary</td>
</tr>
</tbody>
</table>

4. Abbreviation

AJ: Algiers-Jewish dialect
AS: short vowel subsystem /a:/ /non-a/
C: any consonant
CA: Classical Arabic
CY: Cyrenaica dialect

V: any vowel
f.: feminine
m.: masculine
pl.: plural
sg.: singular

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5. Transcription

The following are the consonant which are not according to IPA. IPA transcription is indicated in brackets.

\[ d = [d'], \quad d = [d], \quad \dd = [d'], \quad \dd = [d'], \quad \dd = [d'], \quad \dd = [d'], \quad h = [h], \]
\[ k = [k'], \quad Ɂ = [Ɂ], \quad m = [m'], \quad r = [r'], \quad s = [sv], \quad s = [j], \]
\[ t = [t'], \quad t = [θ], \quad y = [j], \quad z = [z'], \quad ʒ = [ʒ], \quad ' = [2], \]
\[ q = [q], \quad a = [e], \quad \dd = [a], \quad \dd = [a], \quad e = [e], \]
\[ i = [i:], \quad o = [o:], \quad u = [u:] \]

6. Note

1. In this study we make use of the following terminology for verb morphology; “suffixed conjugation” and “prefixed conjugation” in place of the conventional “perfect” and “imperfect” respectively. The reason for this being, in modern dialects the verb expresses not only the aspect but also the tense.

2. If we use the expression for example “CA /X/ corresponds to MZ /Y/” or CA /X/ : MZ /Y/, we do not necessarily intend that the dialectal form originates directly from the form of CA. Thus the above mentioned expression would be paraphrased as “in MZ /Y/ appears in place of CA /X/”. In this respect we do not use the conventional sign > which indicates a historical sound change except for the description of the development of the diphthongs, but instead : is used, which simply indicates correspondence and not a historical connection.
II. DEFINITION OF VOWEL PHONEMES AND OBSERVATION OF THE NEUTRALIZATION OF EACH DIALECT

In this section we define vowel phonemes, including diphthongs of each dialect, and at the same time observe the neutralization of vowel phonemes. This neutralization occurs diachronically and synchronically, as long as CA has three short vowels. However, when a given dialect has only two short vowels, one can easily assume that two of these vowels are neutralized diachronically. On the other hand, if a given dialect has three short vowels, their distribution is normally different from that of CA. For such a case, it is normal that some neutralization is concerned synchronically to these three short vowels. Both diachronical and synchronical neutralization serve to prove the existence of the subsystem.

1. Marazig dialect

All the materials of this dialect are cited from Boris (1958). Since all the words in his dictionary are represented in phonetic transcription, we reconstructed the phonemes by reinterpreting his method of transcription.

One of the characteristics of the Maghribi dialects is that a short vowel in an open syllable tends to be deleted, but in MZ this deletion has not been completed. CA /a/ in an open syllable remains in MZ as an “ultra short vowel”, the timbre of which depends on the consonantal environment, while CA /i/ and /u/ in this position are completely deleted\(^{14}\). This remnant of CA /a/ in such a situation confirms the importance of /a/ in comparison with /i/ and /u/ (parler différentiel)\(^{13}\).

CA        MZ
/ḍarab-/ : /ḍarab/ “he hit”
/katab-/ : /katab/ “he wrote”
/ẓafar-/ : /ḍufar/ “he plaited”
/sakan-/ : /skan/ “he dwelled”

In this study we do not consider the ultra-short vowel as a vowel phoneme because of the absence of its phonological value.

1.1. Vowel system
short long
/i/    /u/     /i/    /ü/
/e/    /ə/ 
/a/     /ä/

Minimal pairs
/a/ : /i/ /ḥabb/ “he loved”: /ḥibb/ “love!”
/a/ : /u/ /ṭadd/ “he returned”: /ṭudd/ “return!”
/a/ : /ā/ /baṭṭal/ “he ceased”: /baṭṭāl/ “not at all”
/i/ : /u/ /ykid/m “he works barely: /ykudd/ “he gnaws”
/i/ : /i/ /tixdim/ “she works”: /tixdim/ “being in rut”
/u/ : /ā/ /ablūg/ “pair of leather slipper”: /ablūg/ “arrival”
/ā/ : /ē/ /ṭār/ “he flew”: /ṭēr/ “bird”
/ā/ : /i/ /ḥāb/ “he brought out”: /ḥīb/ “bring!”
/ā/ : /ō/ /māt/ “he died”: /mōt/ “death”
/ā/ : /ū/ /māt/ “he died”: /mūt/ “die!”
/ē/ : /i/ /zēn/ “beauty”: /zin/ “embellish!”
/ē/ : /ō/ /mēta/ “dead person”: /mōta/ “dead persons”
/ē/ : /ā/ /dēn/ “debt”: /dūn/ “less”
/i/ : /ū/ /ydir/ “he does”: /ydür/ “he turns”
/ō/ : /ū/ /mōt/ “death”: /mūt/ “die!”

1.2. Historical correspondence of short vowel phonemes
CA /a/ : MZ /a/
/bard-/ : /bard/ “coldness”, /istaqbal-/ : /stagbal/ “he turned south”, /maqtal-/ :
/ġarbū‘-/ : / żarbū/ “jarbo‘a”
CA /i/ : MZ /i/
/bint/ : /bint/ “daughter”, /miftāḥ/ : /miftāḥ/ “key”
CA /i/ : MZ /u/
/miṣbāḥ-/ : /muṣbāḥ/ “lamp”, /ṭiflat-/ : /ṭifla/ “little girl”
CA /u/ : MZ /i/
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/muslim-/:/mislim/ "Muslim", /guṭṭat-/:/ziṭṭa/ "cadaver"
CA /u/: MZ /u/
/burğ-/:/buṛz/ "tower", /qullat-/:/guṇa/ "jar"

CA /a/ is generally retained as MZ /a/, while CA /i/ correspond to MZ /i/ or /u/ and CA /u/ to MZ /i/ or /u/.

In the verbal noun of form II, however, CA /ta-/ corresponds regularly to MZ /ti-. CA /taḥdir-/: MZ /tiḥdir/ "going down", CA /ta'ris-/: MZ /ti'rīs/ "marrying off", CA /taḥwil-/: MZ /tiḥwil/ "transfer"

In very few examples /ta-/ occurs sporadically. Here the selection between /a/ or /i/ cannot be predicted from any phonological rule. CA /taḥwim-/: MZ /taḥwim/ "seeking" (cf. above CA /taḥwil-/: MZ /tiḥwil/ "transfer")

1.3. Neutralization of the opposition /i/:/u/
Although in MZ /i/ and /u/ are two distinctive phonemes, minimal pairs are considerably rare; /kibr/ "pride":/kubr/ "grandeur", /ḥigg/ “camel of four years” :/ḥugg/ “know!”, /ṭiḥka/ "roar of laughter" : /ṭuḥka/ “ridicule”, /yuxrug/ “it snuggles up”: /yixrig/ “it causes diarrhea” etc.

In many case the opposition /i/:/u/ is neutralized when the selection of /i/ or /u/ depends on the consonantal environment: /u/ appears in the emphatic environment, and /i/ appears in any other environments.

/ziṭṭa/ “cadaver (CA guṭṭat-):/zuṭṭa/ "trace" (CA ḡurrat-)
/miṭṭa/ “key” (CA miftāh-):/muṣḥa/ “lamp” (CA miṣbāḥ-)

However the above mentioned correspondence is not valid for some verb forms where CA /i/ and /u/ correspond to MZ /i/, even in the emphatic environment.
(1) CA perfect stems CaCiC-, CaCuC- and CuCiC- (passive) correspond to MZ CCiC.
CA /raḍī-/: MZ /ṛḍi/ “he sucked”, CA /qaṣur-/: MZ /gṣir/ “he became disabled” (CA /labis-/ : MZ /lbiṣ/ “he wore”, CA /kaḥur-/ : MZ /kbiṣ/ “he got old”, CA /xuliq-/ : MZ /xlig/ “it was created"
(2) CA imperfect stem vowel /i/ of derived verbs (form II, III and VII) corresponds to MZ /i/ (14).
CA /yuqāṭṭis-/: MZ /yqāṭṭis/ "he plunges” (form II), CA /yuğammiḏ-/ : MZ /yḡam- miôḏ/ “he closes his eye” (form II), CA /yuxaṭī-/ : MZ /yxəṭīr/ “it risks” (form III),
CA /yanqaṭi/ : MZ /yinğṭi/ “it is cut off” (form VII)

1.4. Diphthong

(1) CA /ay/ and /aw/ correspond to MZ /ay/ and /aw/ when the semi-vowel element is geminated.

CA /ay/: MZ /ay/ 
/ṣayyād/: /ṣayyād/ “hunter”, /bayyat/: /bayyit/ “he put up for a night”,
/ḥaay/: /ḥaay/ “living”

CA /aw/: MZ /aw/ 
/dawwar/: /dawwir/ “he turned s.th.”, /daw/: /daww/ “light”, /gaww/: /gaww/ “what is between the sky and the earth”

(2) Otherwise they are monophthongized as /e/ and /o/.

CA /ay/: MZ /e/ 
/bayt/: /bēt/ “tent”, /bayḍat/: /bēḍa/ “egg”

CA /aw/: MZ /o/ 
/mawl/: /mōla/ “owner”, /qawl/: /gōl/ “saying”

2. Cyrenaica dialect

Materials of this dialect are cited from Mitchell (1960) and Owens (1984).

2.1. Vowel system

short long
/i/ /u/ /i/ /ü/ 
/e/ /o/ 
/a/ /ā/

According to Owens (1984) pp. 10-11, CY has five short vowels [a, a, i, u] and [o]. However, [o] is in fact a mere allophone of /ū/ occurring only in a handful of examples. Also [a] should be considered also as an allophone of /a/ which occurs regularly in the emphatic environment, and with decreasing regularity in the velar and labial (including [w]) environment.

Minimal pairs
/a/: /i/ /daff/ “he pushed”: /diff/ “push!”
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/a/ : /u/  /ḥabb/ “he loved”: /ḥubb/ “love”
/a/ : /ā/  /kitab/ “he wrote”: /iktāb/ “book”
/i/ : /u/  /ḥigg/ “young camel”: /ḥugg/ “look!”
/i/ : /i/  /ikbir/ “he became big”: /kbir/ “big”
/u/ : /ā/  not attested
/ā/ : /ā/  /ṭār/ “he flew”: /ṭār/ “bird”
/ā/ : /i/  /šāl/ “he carried”: /šil/ “carry!”
/ā/ : /ō/  /māt/ “he died”: /mōt/ “death”
/ā/ : /ā/  /māt/ “he died”: /mūt/ “die!”
/e/ : /ē/  /ṭēr/ “bird”: /ṭēr/ “fly!”
/e/ : /ō/  /lēn/ “until”: /lōn/ “color”
/e/ : /ū/  /ṭēr/ “bird”: /ṭūl/ “throughout”
/i/ : /ō/  /fīk/ “for you”: /fīg/ “above”
/i/ : /ū/  /rīḥ/ “get lost!”: /rūḥ/ “self”
/ō/ : /ū/  /mōt/ “death”: /mūt/ “die!”

2.2. Historical correspondence of short vowel phonemes

CA /a/ : CY /a/

CA /i/- : CY /i/

CA /i/- : CY /i/
/ṣāṭir/- : /ṣāṭur/ “clever”, /yaltaḥīḍ/- : /yultuḥuḍ/ “he is observed”

CA /u/- : CY /i/

CA /u/- : CY /u/

*CA /a/ is generally retained as CY /a/, while CA /i/ and /u/ correspond to CY /i/ or /u/.
In the open syllable, however, CA /a/ corresponds to CY /i/ or /u/ where their opposition is neutralized\(^{(19)}\). The selection between /i/ or /u/ depends on the consonantal environment (see below II-2.3.).

CA /katab-/: CY /kitab/ “he wrote”, CA /kabir-/: CY /kibir/ “big”, CA /qaṭa‘/-/: CY /gūṭa‘/ “he cut off”, CA /qaṣir-/: CY /gūṣir/ “short”

We consider this irregular correspondence of CA /a/: CY /i/ or /u/ as a result of the weakening of CA /a/\(^{(20)}\).

2.3. The neutralization of the opposition /i/: /u/

Although /i/ and /u/ are two distinctive phonemes, minimal pairs are extremely rare; only three pairs are offered by Mitchell. /ḥugg/ “look!”: /ḥigg/ “young camel”, /rubbi/ “kind of jam”: /ribbi/ “rabbī” and /urkub/ “knee”: /irkib/ “he mounted”. In other cases the opposition /i/: /u/ is neutralized and the selection between /i/ or /u/ depends on the consonantal environment; /u/ appears regularly in the emphatic environment, and with decreasing regularity in the velar and labial environment, while /i/ appears in other environments.

/i/: /u/
/tifakkar/ “he remembered”: /tuḡayyar/ “it is changed”
/inKITAB/ “it was written”: /ingūṭa‘/ “it was cut off”
/ysIBb/ “he insults”: /yšuḥḥ/ “he poured”
/tiḡīl/ “heavy”: /ṣuḡīr/ “small”

2.4 Diphthongs

(1) CA /ay/ and /aw/ correspond to CY /ay/ and /aw/ when the semi-vowel element is geminated.

CA /ay/: CY /ay/
/sayyārat-/: /sayyāra/ “car”, /gayyar-/: /gayyar/ “he changed”
CA /aw/: CY /aw/
/awwal-/: /awwal/ “first”, /gaww-/: /əwarz/ “weather”

(2) Otherwise they are monophthongized /e/ and /o/.

CA /ay/: CY /e/
/dayn-/: /dēn/ “debt”, /kulayb-/: /iklēb/ “small dog”
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CA /aw/: CY /ɵ/
/lawn-/: /lön/ “color”, /rawšan-/: /rōšan/ “window”

3. Hassaniya dialect

All the materials of this dialect are cited from Cohen (1963) and Taine-Cheikh (1988).

3.1. Vowel system

<table>
<thead>
<tr>
<th>Short</th>
<th>Long</th>
</tr>
</thead>
<tbody>
<tr>
<td>/i/</td>
<td>/i/</td>
</tr>
<tr>
<td>/u/</td>
<td>/ū/</td>
</tr>
<tr>
<td>/ə/</td>
<td>/e/</td>
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<tr>
<td>/o/</td>
<td>/ö/</td>
</tr>
<tr>
<td>/a/</td>
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</tbody>
</table>

Among all the modern Maghribi Arabic dialects reported until now, only Maltese and HS seem to have more than four short vowel phonemes. With regards to HS, a careful observation of the distribution of these phonemes makes clear that the short vowel system of HS is divided into two kinds of subsystems which are independent of each other. One subsystem consists of /a/ and /ə/ which stand exclusively in closed syllables, and they are direct descendants of CA short vowels (CA /a/: HS /a/ and CA /i/ and /u/: HS /ə/). Another subsystem consists of /a/, /i/ and /u/ which stand exclusively in open syllable and they have nothing to do with CA short vowels⁹. Since the focus of this study is phonological phenomena in comparison with CA, we are concerned only with the former system considering it as a substantial short vowel system of the dialect and do not deal with the latter.

Minimal pairs

/ɑ/ : /o/   /gɔttlɔk/ “I said to you (m.sg.)”: /gɔttlɔk/ “I said to you (f.sg.)”
/a/ : /a/   /barrad/ “he cooled down”: /barrad/ “tea pot”
/ə/ : /i/   /gās/ “he headed for”: /gis/ “head for!”
/ɑ/ : /u/   /gål/ “he said”: /gūl/ “say!”
/i/ : /ū/   /ʒdīd/ “new”: /ʒdūd/ “ancestors”

3.2. Historical correspondence of short vowel phonemes

NII-Electronic Library Service
CA /a/ : HS /a/
CA /i/ : HS /ə/
CA /u/ : HS /ə/

CA /a/ is retained as HS /a/, while CA /i/ and /u/ correspond to HS /ə/. The latter correspondence should suggest that the opposition CA /i/ : /u/ has been neutralized in the past.

However in some verb forms, CA /a/ does not always correspond to HS /a/. The stem vowel of the suffixed conjugation of form I and III are identical to that of the prefixed conjugation. CA /galas- “to sit” should correspond to HS */žlas/, but /žlas/ is the real form, the stem vowel of which is adopted from that of CA /yağlis-/²². Similarly; CA /bərak- : HS /bərək/ (CA /yubərik-) “he blessed” (form III).

3.3. Diphthongs
CA /ay/ and /aw/ correspond to;
(1) HS /ay/ and /aw/, when the semi-vowel element is geminated, and frequently when they are in the emphatic or pharyngeal environments;
CA /ay/ : HS /ay/
/ḥayy- : /ḥayy/ “living”, ṭayyāb- : ṭayyāb/ “cook”
CA /aw/ : HS /aw/
(2) long vowel plus annex; [ēy] and [ōw] with their free variants without annex [ē] and [ō] in other environments than (1)²³. Taine-Cheikh transcribes the diphthongs with [ay], [ey] and [aw], [ow]²⁴. Considering the fact that [ēy] and [ōw] can alternate freely with [ē], [ō] and [ay], [aw], we agree with the statement of Cohen (1963) pp. 53–54 which does not set [ēy] and [ōw] up as independent phonemes, but as one of the allophones of /ay/ and /aw/²⁵.
CA /ay/ : HS /ay/ ([ay]~[ēy]~[ē])
/bayt- : /bayt/ [bayt]~[bēy]~[bēt] “house”, /‘āmayn- : /‘āmayn/ [‘āmayn]
THE CORRELATION BETWEEN SHORT VOWEL SUBSYSTEM AND LONG VOWEL SYSTEM IN THE MODERN MAGHRIBI DIALECTS (YODA)

~[ˈämən]~[ˈāmən] “two years”
CA /aw/: HS /aw/ ([aw]~[o]~[ō])
/qaws-/: /gaws/ [gaws]~[gō]s~[gōs] “arch”, /nawbat-/: /nawba/ [nawba]~[nō] ba]~[nōba] “season”

4. Tunis-Muslim dialect
All the materials of this dialect are cited from Singer 1984.

4.1. Vowel system

<table>
<thead>
<tr>
<th>short</th>
<th>long</th>
</tr>
</thead>
<tbody>
<tr>
<td>/i/</td>
<td>/i/</td>
</tr>
<tr>
<td>/a/</td>
<td>/ā/</td>
</tr>
<tr>
<td>/u/</td>
<td>/ü/</td>
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<tr>
<td>/a/</td>
<td>/ā/</td>
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<tr>
<td>/u/</td>
<td>/ü/</td>
</tr>
</tbody>
</table>

Minimal pairs
/a/: /i/ /ḥall/ “he opened”: /ḥill/ “open!”
/a/: /u/ /ḥatta/ “he put”: /ḥutta/ “put!”
/a/: /ā/ /xbar/ “news”: /xbār/ “news (pl.)”
/i/: /u/ /išrin/ “twenty”: /ušrin/ “two tenths”
/i/: /i/ /šmin/ it became thick”: /šmin/ “thick”
/u/: /ü/ /zuṟna/ “we visited”: /zurna/ “visit us”
/ā/: /i/ /žāb/ “he brought”: /žib/ “bring!”
/ā/: /ü/ /māt/ “he died”: /mūt/ “death”
/i/: /ü/ /ʾid/ “festival”: /ūd/ “wood”

4.2. Historical correspondence of short vowels
CA /a/: TM /a/
CA /a/: TM /i/

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CA /a/: TM /u/

/maqliy-/: /muqli/ "fried", /marfaq/: /murqqa/ "sick persons", /mxabbi-/: 

/mxubbi/ "hidden", /ramaqan-/: /ramqan/ "Ramadan", /sakran-/: /sukran/ 

"drunk", /saqbrat-/: /suqra/ "tree"

CA /i/: TR /a/

/tacli-/: /taqla/ "going up", /yuqatiti-/: /yaqta/ "he cuts off"

CA /i/: TM /i/

/bint-/: /bint/ "daughter", /miftah-/: /miftah/ "key", /sikkin-/: /sikkin/ "knife",

/xarig-/: /xarig/ "going out"

CA /i/: TM /u/

/miqdaf-/: /muqda/ "oar"

CA /u/: TM /i/

/mutaqabil-/: /mitqabil/ "opposing", /subbak-/: /sibbak/ "window"

CA /u/: TM /u/

/burg/: /burj/ "tower", /duxan-/: /duxan/ "smoke", /funduq-/: /funduq/ "cara-

vansary", /kull-/: /kull/ "all"

In many cases CA /a/, /i/ and /u/ seem to correspond to TM short vowels freely. Singer (1980) pp. 142-147, 150-158 attempts to elucidate the conditions of this correspondence. According to his explanation, there are the following possible correspondence; CA /a/: TM /a/, /i/ and /u/, CA /i/: TM /a/, /i/ and /u/ and CA /u/: TM /i/ and /u/. The conditions depend mainly on the consonantal environment or the morphological form. On the other hand, in many cases the neutralization of the vowel opposition prescribes the correspondence as follows.

4.3. Neutralization of short vowel phonemes

Singer (1984) pp. 72-81 shows two kinds of the neutralization of TM, which occur in restricted morphological forms. The neutralization can be observed in the case where the same morphological form is realized with a different short vowel phoneme. For example CA miCCaC (miftah- "key", miqda- "oar") corresponds to two TM forms miCCaC and muCCaC (/miftah/ and /muqda/ respectively) where the opposition /i/: /u/ is neutralized and the selection between /i/ or /u/ depends on the consonantal environment; /u/ is selected mostly in the pharyngeal environment,
and with decreasing regularity in the emphatic and velar environments\(^{(26)}\).

Another example attests the neutralization of the opposition /a/:/i/. CA CaCiC- (xāriği- “going out”, ṭāli- “going up”) corresponds to two TM forms, CaCiC and CaCaC (/xāriği/ and /ṭāla'/ respectively). In this example the opposition /a/:/i/ is neutralized and the selection between them depends on the consonantal environment; /a/ is selected, as in the neutralization of the opposition /i/:/u/, mostly in the pharyngeal environment, and with decreasing regularity in the emphatic and velar environment\(^{(27)}\).

In the following we confirm the form in which the neutralization takes place.

4.3.1. The neutralization of the opposition /i/:/u/.

This neutralization occurs in the following morphological patterns.

(a) Passive participle of form I of 3rd radical weak verb\(^{(28)}\).
   CA maCCiy- : TM miCCi/TM muCCi
   /mabniy-/:/mibni/ “built”, /mašwiy-/:/mišwi/ “roasted”
   /mašliy-/:/mušli/ “grilled”, /maqlīy-/:/muqli/ “fried”

(b) Participle of form II of 3rd radical weak verb\(^{(29)}\)
   CA muCaCCi- : TM mCiCCi/mCuCCi
   /mu'abbi-/:/m'ibbi/ “full”, /muḥanni-/:/mḥinni/ “dyed with henna”
   /muxabbi-/:/muxikki/ “hidden”, /muḥaṭṭi-/:/mḥuṭṭi/ “covered”

(c) Participle of form V of 3rd radical weak verb
   CA mutaCaCCi- : TM mitCiCCi/mitCuCCi
   /muta'addi-/:/mit'iddi/ “passed”
   /mutaṣaffifi-/:/mitṣufffi/ “purified”

(d) Verbal noun of form II of 3rd radical weak verb.
   CA taCCiyat- : TM tiCCiya/tuCCiya
   /tadfi'at-/:/tidfya/ “heating”, /tasqiyat-/:/tisqya/ “watering”
   /ṭagṭiyat-/:/tuqṭiya/ “covering”, /ṭarbiyat-/:/ṭurbya/ “education”

(e) Nominal or adjective forms\(^{(30)}\).
   CA CaCCāC- : TM CiCCāC/CuCCāC
   /kattān-//:/kittān/ “linen”, /šab'ān-//:/šib'ān/ “satiated”
   /faxxār-//:/fuxxār/ “pottery”, /aṭšān-//:/uṭšān/ “thirsty”, /sakrān-//:/sakrān/ “drunk”
CA CiCCāC - TM CiCCāC/CuCCāC
/miftāḥ-/ : /miftāḥ/ “key”, /miḥrāt-/ : /miḥrāt/ “plow”
/miqdāf-/:/muqdāf/ “oar”, /mismār/-/:/muṣmār/ “nail”
CA CuCCāC - TM CiCCāC/CuCCāC
/’uryān-/:/iryān/ “naked”, /šubbāk-/:/šibbāk/ “window”
/duxxān-/:/duxxān/ “smoke”

4.3.2 The neutralization of the opposition /a/ : /i/.

This neutralization occurs in the following morphological forms.

(a) Active participle of form verb
CA CāCiC - TM CāCiC/CāCaC
/xārīg-/:/xārīzh/ “goint out”, /yābis-/:/yābis/ “dry”
/tālī-/:/tāla/ “going up”, /gāriq-/:/gāriq/ “deep”

(b) Stem vowel of vowel suffixal/prefixal conjugation, participle of derived forms (II, III, V, VI, X) of strong verb, and of quadriliteral verb.
   (i) CA CāCāC - TM CāCīC/CāCaC (form II—suffixal conj.) /daxxān-/: /daxxin/ “he smoked”, /xayyat-/: /xayyat/ “he sewed”, (ii) CA /yuCaCāC - TM yCāCīC/yCāCaC (form II—prefixal conj.) /yudaxxān-/: /yudaxxin/ “he smokes”, /yuxayyat-/: /yxayyat/ “he sews”, (iii) CA muCāCāC - TM mCāCīC/mCāCaC (form II—participle) /muqayyad-/: /mqayyid/ “registered”, /mu’aaxxār-/: /mu’axxār/ “late”, (iv) CA CāCāC - TM CāCīC/CāCaC (form III—suffixal conj.) /bārak-/: /bārik/ “he blessed”, /fāra-/: /fāra/ “he fooled around”, (v) CA yuCāCīC - yCāCāC (form III—prefixal conj.) /yubārik-/: /yubārik/ “he blesses”, /yufāri-/: /yfāra/ “he fools around”, (vi) CA taCāCāC - TM tCāCīC/tCāCaC (form V—suffixal conj.), /taḥarrak-/: /thaṭrrik/ “he moved”, /taxarrāt-/: /tخارت/ “he practiced s.th.”, (vii) CA yataCāCāC - TM yitCāCīC/yitCāCaC (form V—prefixal conj.) /yataḥarrak-/: /yitḥarrik/ “he moves”, /yataxarrāt-/: /yitxarrāṭ/ “he practices s.th.”, (viii) CA muτaCāCāC - TM mitCāCīC/mitCāCaC (form V—participle) /mutarakkīb-/: /mitrakkīb/ “composed” /mutaxaṣṣāṣ-/ /mitxaṣṣāṣ/ “specialized”, (xi) CA taCāCāC - TM tCāCīC/tCāCaC (form VI—suffixal conj.) /taqābāl-/: /tqābil/ “he met”, /tāfāraq-/: /tfaṭrāq/ “it diverged”, (x) CA yataCāCāC - TM yitCāCīC/yitCāCaC (form VI—prefixal conj.) /yataqābāl-/: /yitqābil/ “he meets”, /yatafāraq-/: /yitfāraq/ “it diverges”, (xi) CA istaCāCā - TM
THE CORRELATION BETWEEN SHORT VOWEL SUBSYSTEM AND LONG VOWEL SYSTEM IN THE MODERN MAGHRIBI DIALECTS (YODA)

staCCiC/staCCaC (form X—suffixal conj.) /ista'mal-/: /sta'mil/ “he used”, /istaxbar-/: /staxbar/ “he asked”, (xii) CA yastaCCiC- : TM yistaCCiC/yistaCCaC (form X—prefixal conj.), /yasta'mil-/: /yista'mil/ “he uses”, /yastaxbir-/: /yistaxbar/ “he asks”, (xiii) CA mustaCCiC- : TM mistaCCiC/mistaCCaC (form X—particle), */mustahlšim/: /mistaħšim/“ashamed”, /mustaqtar/: /mistaqtar/ “dropping”
c) Diminutive form (1)
CA muCayCil- : TM mCiCiC/mCiCaC
/mufaytišh/ : /mfitiš/ “small key”, /muwaytiq/: /mwiťaq/ “small tent peg”
d) Diminutive form (2)
CA CuCayC- (?,?): TM CCayyiC/CCayyaC
/kulayb-/: /klayyib/ “small dog”, /drayʕ-/: /drayyaʕ/ “small arm”
f) Plural form
CA CaCaCiC-/CaCaCiC- : TM CCaCiC/CCaCaC
/xawátim-/: /xwátim/ “signet-rings”, /maqádif-/: /mqádif/ “oars”
/ḡawámiʕ-/: /zwámaʕ/ “mosques”, /maqáliʕ-/: /mqálaʕ/ “slingshots”

4.4. Diphthong
(1) CA /ay/ and /aw/ correspond to /ay/ and /aw/ when the semi-vowel element is geminated.
CA /ay/: TM /ay/
/xayyát/: /xayyat/ “he sewed”, /ḥayy-/: /ḥayy/ “living”
CA /aw/: TM /aw/
/ḥawwáʔ-/: /ḥawwáʔ/ “fishmonger”, /ḡaww-/: /žaww/ “weather”
(2) Otherwise they are monophthongized /i/ and /u/.
CA /ay/: TM /i/
/bayt-/: /bit/ “room”, /šaytān-/: /šitān/ “devil”
CA /aw/: TM /u/
/yawm-/: /yūm/ “day”, /ḥawláʔ-/: /ḥūla/ “squint-eyed”

5. Tunis-Jewish dialect
All the materials are cited from Cohen (1970 and 1975). In these works the words are represented in phonetic transcription. we reconstructed the phonemes by
reinterpreting his method of transcription.

5.1. Vowel system

<table>
<thead>
<tr>
<th>Short</th>
<th>Long</th>
</tr>
</thead>
<tbody>
<tr>
<td>/ə/</td>
<td>/i/</td>
</tr>
<tr>
<td>/o/</td>
<td>/ʊ/</td>
</tr>
<tr>
<td>(/a/)</td>
<td>(/a/)</td>
</tr>
</tbody>
</table>

Cohen (1975) sets up three short vowel phonemes /a/, /ə/ and /o/.


[säyyəb] /säyyəb/ "he let go" : [ṣiyyəb] /ṣiyyəb/ “he treated s.o. as aged person”

/a/ : /o/ /gāšš/ “he deceived” : /gōšš/ “anger”

/ə/ : /o/ /kənna/ “daughter in law” : /konna/ “we were”

The status of the phoneme /a/ is very complex. Cohen himself doubts about the autonomy of /a/ as a phoneme(32) because except for the two examples cited above, at least in his work, no example is found in which /a/ and /ə/ are phonologically opposed. Normally the [ə] and [ə] are allophones of /a/, and their distribution is complementary. Although we should admit the autonomy of the phonemes involved, as long as minimal pairs exist, even if they are very few, it is not possible, in favour of a working hypothesis, to disregard the phoneme /a/, and to think the short vowel system of the dialect consists only of /ə/ and. /o/? If we permit /a/, we have to establish several forms for one verbal or nominal pattern, so that we are forced to establish a very complex morphological system. Cohen (1975) p. 62 divides the development process of the vowel system of TJ diachronically into three steps, and says that in the third system, which is the actual TJ system, there is “une confusion totale des réalisations de /ā/ et /ē/ en /a/”, and that “c’est ce troisième système qui peut être considéré comme le système vivant…”. The third system is represented as follows;

```
 o  a
```

(a)

From these passages we can suppose that two phonemes /ə/ and /o/ are substantial and /a/ is marginal. We will therefore omit the phoneme /a/ from the phoneme
inventory, and will consider that the TJ short vowel system consists only of /ə/ and /o/ in favour of the working hypothesis.

Minimal pairs

/a/ : /ä/ /źməl/ “camel” : /žməl/ “camels”
/a/ : /ɜ/ /šxəf/ “he had pity” : /šxəf/ “pitiful”
/a/ : /ü/ /šxən/ “he got warm” : /šxən/ “warm”
/o/ : /øɾba/ “soup” : /šəɾba/ “drunkard (f)”
/o/ : /i/ /broq/ “it was bright” : /bɾiq/ “brightening”
/o/ : /û/ /mɾəq/ “he fell ill” : /mɾuq/ “illness”
/ä/ : /i/ /ʒəb/ “he brought” : /ʐib/ “bring!”

5.2. Historical correspondence of short vowels

CA /a/ : TJ /ə/
/taʕ-/ : /təʕ/ “snow”
CA /a/ : TJ /o/
CA /i/ : TJ /ə/
/mismar-/ : /məʃmar/ “nail”
CA /i/ : TJ /o/
/miqdāf-/ : /moqdaʃ/ “oar”, /nāqiʃ-/ : /nəqəʃ/ “missing”
CA /u/ : TJ /ə/
CA /u/ : TJ /o/
/burg-/ : /bəɾʒ/ “tower”, /funduq-/ : /fondaʃ/ “caravansary”

CA /u/ is generally retained as TJ /o/ (its function is the same as CA /u/ as regards to its back-roundness against /ə/), while CA /a/ and /i/ correspond to TJ /ə/. The latter correspondence should suggest the neutralization of the opposition
CA /a/ : /i/ in the past. But there are many irregular correspondences which result from the neutralization of the opposition /ə/ : /o/.

5.3. Neutralization of the opposition /ə/ : /o/

The neutralization can be observed in the case where a morphological form is realized in two ways. For example TJ has two forms CaCCāC and ġoCCāC which correspond to CA CaCCāC-. Here the opposition /o/ : /ə/ is neutralized and the selection between /o/ and /ə/ depends on the consonantal environment; /o/ appears generally in the emphatic or velar environments.

CA : TJ
CaCCāC : ġoCCāC (fellāh/ “farmer”)
: CoCCāC (botţal/ “unemployed person”)

The neutralization of the opposition /o/ : /ə/ occurs generally in an unstressed syllable but is especially attested in the following morphological forms.

(a) Active participle of form I of the strong verb and noun which takes the same form
CA CāCiC : TJ Cā=o=C/CaCoC
/tāğir/- : /tāżar/ “merchant”
/nāqiš/- : /nāqoş/ “missing”

(b) Nominal form
CA CvCCāC : TJ CaCCāC/CoCCāC

(c) Plural forms
CA CCāCiC : TJ CCa=o=C/CCaCoC
/fanāɡil/- : /fnāţal/ “coffee cups”
/qarāţis/- : /qrāţos/ “paper cones”

(d) Passive participle of form I 3rd radical weak verb
CA maCCiy- : TJ moCCI/moCCI
/mabdīy/- : /mabdî/ “begun”
THE CORRELATION BETWEEN SHORT VOWEL SUBSYSTEM AND LONG VOWEL SYSTEM IN THE MODERN MAGHRIBI DIALECTS (YODA)

\[ /maqliy/- : /moqli/ \text{ "grilled"} \]

This neutralization causes a very precarious situation for the opposition /o/: /ə/. When the neutralization takes place to a further extent beyond the restriction of forms, the distinctiveness of two phonemes would be considerably reduced, which brings about finally a one short vowel system just like AJ (see below II-6.).

5.4. Diphthongs

(1) CA /ay/ and /aw/ generally correspond to TJ /əy/ and /əw/ which are realized as [ay], [äy], [iy] and [aw], [äw], [aw], [uw] respectively according to the consonant environment.

CA /ay/: TJ /əy/

/bayt-/: /bəyt/ [bäyt] “room”, /fayyaq-/: /fəyyaq/ [fiyyâq] “he registered”

CA /aw/: TJ /əw/


(2) In the following cases CA /ay/ and /aw/ correspond to TJ /i/, /i/ and /u/, /u/ respectively.

(a) CA /ay/: TJ /i/ # C [+stress]

/’aybas-/ : /bəš/ “more dried”, /suwayqat-/ : /šəfqa/ “small leg”

(b) CA /aw/: TJ /u/ # C [+stress]

/’awwal-/: /uwəl/ “first”

(c) CA /aw/: TJ /w/ # C [−stress]

/’awläd-/: /wəlād/ [ulād] “boys”

6. Algiers-Jewish dialect

All the materials of this dialect are cited from Cohen (1912). Since all the words in his work are represented by phonetic transcription, we reconstructed the phonemes by interpreting his method of transcription.

6.1. Vowel system
Minimal pairs
/a/ : /ä/  /ktɛf/ “shoulder” : /ktɛf/ “shoulders”
/a/ : /i/  /mlɛh/ salt” : /mlɛh/ “well”
/a/ : /ü/  /brɔd/ “it was cold” : /brʊd/ “coldness”
/ä/ : /i/  mšät / “she went” : mšit/ “I went”

According to his statements, it seems that the short vowel system of AJ consists of only one vowel. “des voyelles brèves de l’arabe classique ā, ī, ū sont régulièrement ... représentées par une voyelle unique.”, “elle est notés ici par ā”, “des nuances variées sont amenées par le voisinage consonantique” (Cohen (1912) p. 116).

In addition to these statements, he mentions the influence of the consonants surrounding the vowel in question (ibid. pp. 118-129). Finally he concludes; “... en réalité les nuances vocaliques, extrêmement nombreuses, sont aussi très variables et souvent difficiles à percevoir, notamment dans les voyelles de durée très brève” (ibid. p. 129)

From these statements we can assume that in AJ only /ā/ exists as a short vowel phoneme, and the glossary of his work gives no word opposed to another one by the difference of the timbre of a short vowel. In addition, the alternation of the stem vowel between the perfect and the imperfect (and the imperative) by the geminated verb, as well as by other verbs, is completely absent. This would be the convincing proof of such an assumption, since the short vowel system of each dialect tends to be reflected in such an alternation.

TM (3 short vowels /a/ : /i/ : /u/)
/ɾədd/ [ɾədd] “he gave back” : /ɾədd/ [ɾədd] “give back!”

TJ (2 short vowels (US) /ə/ : /o/)
/ɾədd/ [ɾədd] “he gave back” : /ɾədd/ [ɾədd] “give back!”
THE CORRELATION BETWEEN SHORT VOWEL SUBSYSTEM AND LONG VOWEL
SYSTEM IN THE MODERN MAGHRIBI DIALECTS (YODA)

HS (2 short vowels (AS) /a/ : /a/)
/madd/ [mādd] “he stretched” : /madd/ [mādd] “stretch!”
/radd/ [radd] “he told” : /radd/ [radd] “tell!”

But in AJ the stem vowel does not alternate in both conjugation forms.
[mādd] “he stretched” : [mādd] “stretch!”
[radd] “he gave back” : [radd] “give back!”

If we follow the previously mentioned tendency, the short vowel system of AJ
consists of the sole short vowel /a/.

6.2. Neutralization of short vowel phonemes

Cohen (1970) p. 177 assumes that the short vowel system of AJ, which has only
one short vowel phoneme /a/, would be a special case of the short vowel subsystem
/u/ : /a (=a/i) // (see above I–1.). From the self-examination of the dialect we can
not find any proof of Cohen’s assumption, but it would be possible to support the
probability of his assumption by comparison with the short vowel system of TJ
which is typologically near to AJ. As seen in section II–4. and II–5., the short vowel
system of the sedentary dialects suffers two kinds of neutralization. On the contrary
that of the bedouin dialects know only the neutralization of the opposition /i/ : /u/,
and no case of systematic neutralization of the opposition /a/ : /i/ or /a/ : /a/ (<i, u)
has not been attested until now(36). However, it is necessary for the emergence of
a dialect of one short vowel phoneme to undergo two kinds of neutralization, in order
that three short vowel phonemes are reduced into one. It seems that AJ had the same
short vowel system as TJ (/o/ : /a/) in the past. When the extension of the neutrali-
zation reached the peak, /o/ and /a/ was merged into one phoneme /a/ whose
timbres are defined only by consonantal environment.

6.3. Diphthongs

(1) CA /ay/ and /aw/ correspond generally to AJ /ay/ and /aw/ which are
realized as [ay], [iy] and [aw], [uw] respectively according to the consonant environ-
ment, when the semi-vowel element is geminated.
CA /ay/: AJ /ay/
/fayyaq/: /fayaq/ “he woke up”
CA /aw/: AJ /ωw/
/'awwal-/: /ωwwol/ “first”, /qawwās-/: /qawwās/ “violinist”
(2) Otherwise they are monophthongized /i/ and /ʊ/.
CA /ay/: AJ /i/
/bayt-/: /bit/ “room”
CA /aw/: AJ /ʊ/
/qaws-/: /qūs/ “arch”

7. Conclusion

In this section we confirmed the number of the short vowel phoneme of each dialect. HS has apparently four short vowels, but from the difference of the distribution we can divide it into two subsystems. The first system consist of three vowels /a/, /i/ and /u/, and the second of two vowels /a/ and /a/. While the vowels of the latter system originate from CA, those of the former are dialectal innovation. Therefore we consider the latter as the substantial system of the dialect, and through the observation of the short vowel system of TM and TJ we attested that one short vowel system of AJ is a continuum of the TJ short vowel system.

We have observed the neutralization of short vowel phonemes among the Maghribi dialects. Such neutralization affects broadly the short vowel system of each dialect.

MZ and CY: The opposition /i/: /u/ is so extensively neutralized that the distinctiveness of these two phonemes is considerably reduced and they are distinctive in only a limited number of words. When the neutralization is completed, a binary short vowel system, just like HS, comes into existence.

HS: We presume that the binary short vowel system /a/: /a/ of this dialect emerges as a result of the neutralization of the opposition /i/: /u/ which may have taken place in the past. The present situation of MZ and CY should support this presumption.

TM: In this dialect two kinds of neutralization are attested. Unlike in the bedouin dialects, the neutralization takes place only in limited cases. (1) The neutralization of the opposition /a/: /i/ takes place after the stressed syllable in the verbal stems (including participle). (2) The neutralization of the opposition /i/: /u/ takes place before the stressed syllable in some particular forms, and even in the stressed
syllable in particular verbal stems\(^{37}\).

**TJ:** We presume that the binary short vowel system /a/ : /o/ of this dialect emerges as a result of the neutralization of the opposition /a/ : /i/ which may have taken place in the past. In addition the very opposition /a/ : /o/ also tends to be neutralized. This neutralization is attested generally in an unstressed syllable.

**AJ:** This dialect has only one short vowel phoneme. Only by the self-examination, we can say nothing about the neutralization and its influence on the vowel system. However the present situation of TJ is a good indication that the short vowel system of AJ is a more advanced system of TJ.

Then we attested two kinds of the neutralization:

(a) The neutralization of the opposition /a/ : /i/

(b) The neutralization of the opposition /i/ : /u/ (in TJ /a/ : /o/)

Whereas all the bedouin dialects have only (b), all the sedentary dialects have both (a) and (b). This fact reveals two things; (1) in the bedouin dialect /a/ is of special significance in comparison with other vowels and its status is so solid that it is impossible for /a/ to be neutralized with another vowel. Therefore no dialect with one short vowel system emerges from the bedouin dialect. (2) Although in the sedentary dialects the status of /u/ is relatively solid, but not absolute. Since the neutralization of the opposition /a/ : /i/ takes place more broadly than that /i/ : /u/, the binary short vowel system like TJ is possible, but the latter neutralization also certainly functions, thus finally one short vowel system on AJ emerges.

In dialects of three short vowels system, like TM, MZ and CY, there exist a counterpart of two neutralizable short vowels. For example MZ /a/ is the counterpart of /i/ and /u/ which are the object of the neutralization. In order to relate these two neutralizable short vowels and their counterpart we establish a concept of "the subsystem" of the short vowel system. It is Singer (1984) p. 82 who suggests this term ("Unter-System"). Thus we have two subsystems;

\{a\} : \{non-a\} (= /i/ and /u/) = AS

\{u\} : \{non-u\} (= /a/ and /i/) = US

Thus HS, MZ and CY are under the influence of a subsystem \{a\} : \{non-a\} (as to HS, \{non-a\} is /a/), and TM, TJ and AJ are under the influence of two subsystems \{a\} : \{non-a\} (this functioned previously in TJ, and \{u\} : \{non-u\} (for TJ, \{u\} is /o/. This subsystem functioned previously in AJ).
The schema of these subsystems is substantially identical to that which was shown in I-1. However the advantage of the subsystems is that it is possible to present the short vowel system of more than three short vowels.

III. CORRELATION BETWEEN SHORT AND LONG VOWEL SYSTEMS

When we pay attention toward the long vowel system of the Maghribi dialects, we cannot fail to notice that it also falls into two groups. One of them is particular to sedentary dialects and the other to bedouin dialects. This chapter argues the following points from a diachronical point of view.

1. Two types of long vowel system

As already pointed out by Marçais (1950) p. 207, Cantineau (1960) pp. 103–104, Fischer-Jastrow (1980) pp. 250–251, long vowel systems among the Maghribi dialects are divided into two types:

(a) five vowels system: /ā:/ /ē:/ /ī:/ /ō:/ /ū/ (5LVS)
This type is particular to bedouin dialects.
(b) three vowels system: /ā:/ /ī:/ /ū/ (3LVS)
This type is particular to sedentary dialects. HS, though it belongs to the bedouin dialect group, is of this type.

As seen in the preceding section, the long vowel system of the modern Maghribi dialects, except for HS, consists historically of CA long vowels /ā/, /ī/ and /ū/ and CA diphthongs /ay/ and /aw/ which correspond to /ē/ a /ō/ in bedouin dialects, and to /ī/ and /ū/ in sedentary dialects respectively.

2. The nature of diphthongs

The diphthongs of CA can be analyzed as the complex of short vowel /a/ + semi
vowel functioning as a consonant (/y/ and /w/). Thus for example in words as CA /bayt-/ "house" or /mašaytu/ "I walked", the group /ay/ is the equivalent to the group /ar/ in /barq-/ "flash" or to the group /al/ in /qataltu/ "I killed". In that respect, the alleged diphthongs of CA are able to be phonologically separated, therefore they are not a diphthongs in the strict sense. Thus the short vowel element of the diphthongs is naturally affected by the short vowel subsystem and suffers neutralization.

3. The process of sound change

In this section we attempt to explain the historical change of CA diphthongs in two long vowel systems.

3.1. Three long vowels system (3LVS)

Process of sound change

<table>
<thead>
<tr>
<th>CA (1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ay &gt; *äy &gt; *ey &gt; iy &gt; i</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>aw &gt; *âw &gt; *ow &gt; uw &gt; ū</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Process (1) to (3)

[ay>äy>ey>iy]: [a] of [ay] tends to be a high-front vowel due to [y] until it assimilates totally to [y] and becomes [i].

[aw>âw>ow>uw]: /a/ of /aw/ tends to be a back-round vowel due to /w/ until it assimilates totally to /w/ and becomes /u/.

Process (4)

This process can be explained by the fact that Arabic long vowel [i] and [ū] can be interpreted as [iy] and [uw] respectively.

3.2. Five long vowels system (5LVS)

<table>
<thead>
<tr>
<th>CA (1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ay &gt; *äy &gt; ey &gt; ĕx &gt; ĕ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>aw &gt; *âw &gt; ow &gt; ŕw &gt; ĕ</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Process (1) and (2)
Assimilation of the vowel element to the semi-vowel element.
[ay] > [ey]: [a] of [ay] tends to be a high-front vowel due to [y].
[aw] > [ow]: [a] of [aw] tends to be a back-rounded vowel due to [w].
Process (3) and (4)
Reduction of semi-vowel element and lengthening of the vowel element. In this step
the semi vowel element is reduced to a simple glide, and in compensation for this
reduction, the vowel element is lengthened. At the final step (4) the glide is deleted
and the compensatory lengthening is completed.

3. The influence of the subsystems on 3LVS and 5LVS.

In the sedentary dialects the short vowel element of the diphthongs assimilates
completely to the semi vowel elements; /ay/ > /i/ and /aw/ > /u/. On the other hand,
in the bedouin dialects the assimilation does not advance to such a extent and stops
at the degree /ay/ > /e/ and /aw/ > /o/. As seen in II-7, the bedouin dialects have
AS as their short vowel subsystem where the opposition {a} : {non-a} is so strong
that the neutralization between them is almost never attested. Generally in
Maghribi dialects a short vowel phoneme possesses a number of allophones, and they
are scattered so widely that the border lines between the phonemes are very close to
each other. Thus the status of [e] and [o] is very delicate, but because [ey] and [ow]
are attested in some bedouin dialects of Maghreb, we can consider [e] and [o] of
the diphthongs are allophones of [a].

In the sedentary dialects under the influence of US (\{u\} : {non-u}), the short
vowel element of the diphthongs [a] belongs to {non-u}. The shift [ay] > [iy] > [i] can
be quite naturally achieved since both [a] and [i] (\{non-u\}). The problem is with
the shift [aw] > [uw] > [u]. In order to achieve this shift, the vowel element must
exceed the border of {non-u} and {u}. Unlike the case of AS of bedouin dialects,
even if the subsystem {u} : {non-u} vigorously functions, the border between the two
items is relatively lax to such an extent that the opposition {u} : {non-u} is neutral-
ized, so that there appears a dialect of one short vowel phoneme. Therefore it is
possible for [a] (\{non-u\}) to shift to [u] (\{u\}). In some dialects from both
bedouin and sedentary dialect groups, the ancient diphthongs have not been mono-
phthongized but remain as they were. These kinds of dialects always have the three
long vowels system.

Viewed in this light, one may say that the short vowel subsystems affect the formation of 3LVS and 5LVS.

IV. CONCLUSION

In section II we proved that all the Maghribi dialects dealt with in this study suffer some neutralization of the short vowels. In the bedouin dialects only the opposition /i:/-/u/ tends to be neutralized, while in the sedentary dialects the opposition /i:/-/u/ and the opposition /a:/-/i/ tend to be neutralized. Because of this we created the concept of “the short vowel subsystem” which affects the neutralization of short vowels, then we set up two subsystems; {a} : {non-a} (AS) and {u} : {non-u} (US).

Section III attested, first of all, the nature of the diphthongs and confirmed how CA diphthongs are reflected in the dialects. CA /ay/ and /aw/ are realized in the bedouin dialects as /e/ and /o/, in the sedentary dialects as /i/ and /u/ respectively. As a result of this, the long vowel systems of the Maghribi dialects are classified in two types: 3LVS which consists of /a/ , /i/ and /u/ and 5LVS of /a/ , /e/ , /i/ , /o/ and /u/. The former is particular to the sedentary dialects, and the latter to the bedouin dialects.

Then the sound shift of CA diphthongs to the long vowels of dialects was studied in the light of the short vowel subsystem.

5LVS: The vowel element of the diphthongs [a] belongs to {a}. Since the opposition {a} : {non-a} is so solid that no vowel shift from {a} to {non-a} can take place. Therefore [a] cannot shift to [i] or [u], which belongs to {non-a}, but the shift [ay] > [ey] and [aw] > [ow] are possible because both [e] and [o] of [ey] and [ow] are allophones of /a/ = {a}.

3LVS: The vowel element of the diphthongs /a/ belongs to {non-u}. This /a/ completely assimilates to the semi vowel element /y/ and /w/ : [ay] > [ay] > [ey] > [iy] > [i] and [aw] > [aw] > [ow] > [uw] > [u]. The shift [ay] to [i] (= [iy]) occurs very easily because both [a] and [i] (= {non-u}), whilst the shift [aw] to [u] (= [uw]) is problematic because [a] = {non-u} and [u] = {u}. However as stated above, the
opposition {u} : {non-u} is less strict than that of {a} : {non-a}, therefore it is not so difficult for [a] to shift to [u].

We therefore conclude as follows; the bedouin dialects and the sedentary dialects have different short vowel subsystems (US for the sedentary dialects and AS for both the bedouin and the sedentary dialects in which US is of much more importance). These short vowel subsystems affect the development of diphthongs in a different manner, which brought about 3LVS for the sedentary dialects and 5LVS for the bedouin dialects.

BIBLIOGRAPHY

Abbreviation
AIEO: Annales de l'Institut d'Études Orientales, Alger
RA: Revue Africaine, Paris

——: "Les parlers arabes des Territoires du Sud" RA 85 (1941) pp. 72-77.
THE CORRELATION BETWEEN SHORT VOWEL SUBSYSTEM AND LONG VOWEL SYSTEM IN THE MODERN MAGHRIBI DIALECTS (YODA)


—: "Textes arabes du sud-algérois" RA 84 (1940) pp. 93–117.


(1) This is a revised version of the master's thesis of the author entitled "A Tentative Approach to the Underlying Vowel System among the Maghribine Arabic Dialects", submitted to Osaka University of Foreign Studies in 1996. The present work was achieved under the supervision of Professor TAKASHINA Yoshiyuki, Osaka University of Foreign Studies, and its draft was presented to Professors YABU Shiro and NAKAO-KA Shoji, Osaka University of Foreign Studies.

(2) Most of modern dialects have innovated diphthongs, normally long ones, as /-āw/, (TM /māw/ "they went"), /-āy/ (TM /rāys/ "captain"), /-iw/ (TM /yimāw/ "they went").

(4) Algiers-Jewish dialect has only one short vowel phoneme, see II-6. Although it is frequently said that also Djidjelli has only one short vowel phoneme, we can find minimal pairs as /imt/ “I swam”; /umt/ “I raised”, which proves the very existence of two short vowel phonemes /i/ and /u/, see Marçais (1956), pp. 165-166.

(5) Benghazi dialect (“Cyrenaica dialect” in this study) should have three short vowel phonemes as will be proved in II-2.


(7) Cowell (1964) p. 22.

(8) The same situation is attested in other dialects. While in Baghdad /i/ and /u/ are distinct phonemes; /gimal/ “camel”; /gumal/ “sentences”, but sometimes they are in free variation; /sidis/~/sudus/ “sixth”, or they are in combinatorial variation; /liga/ “he found”: /buqa/ “he remained”. These verbs originate historically from the same ancient verbal form CaCy- (form I 3rd radical weak verb). The selection between /i/ or /u/ depends on the consonantal environment; for example in labial-velar environment as in /buqa/, /u/ is selected. See Erwin (1963) pp. 37-38.


(11) See Marçais (1908) pp. 54-55.


(13) For example in MZ; /yiţlig/ (CA /yuţliq/) “he lets go”, /yuţlub/ (CA /yaţlub/) “he asks”, /yaţ harassment/ (CA /yaţhar-) “he becomes clean”, in CY; /yultunud/ (CA /yaltaţhiz/) “it observes”, in TM; /yuskun/ (CA /yaskun-) “he dwells etc.

(14) Fischer-Jastrow (1980) p. 249 classified the weakening of the short vowels in open syllable into four steps; (1) CA /a/ remains as it is but CA /i/ and /u/ are deleted (2) CA /a/ shifts to /i/ or /u/ (3) CA /a/ shifts to a ultra short vowel (4) every CA short vowel is deleted. MZ is in the third step.

(15) Cantineau (1936-37) p. 49.

(16) The dictionary of Boris does not supply sufficient data of other derived forms (IV, VIII, X). The stem of form V and VI are not concerned with CA /i/, since the stem vowel is /a/ for both suffixed and prefixed conjugation: /tkallam/ “he spoke”; /ytkallam/ “he speaks” In MZ, just as other Maghribi dialects, the function of CA form IX (iCCaC, C) is replaced by form XI (iCCaC): /twal/ “it became long”, /sfaţ/ “it became yellow” etc.


(18) Mitchell (1960) p. 379 mentions one minimal pair by [a] and [a]; [šakk] “he doubted” : [šaškk] “he scratched”. However it is more reasonable to interpret these words as distinguished not by [a]: [å], but by [k]: [k]. In this case [k] would be emphasized in order to distinguish two concepts of the root; √škk for “doubt” and √škš for “scratching”. Such a phenomenon is attested in other dialects. An opposition √šry “to run”: √šry “to happen” is a well-known case in Cairo (/giri/ : /gaša/) and in Tunis-Muslim (/jra/ :
THE CORRELATION BETWEEN SHORT VOWEL SUBSYSTEM AND LONG VOWEL SYSTEM IN THE MODERN MAGHRIBI DIALECTS (YODA)

/ʁʁa/). In Levantine dialects CA ʁʁa is split out into ʁʁa “to go out”: ʁʁa “breast”; /sˤaˤr/ “it emanated”:/sˤaˤr/ “breast” (see Barthélemy). The information about the Levantine dialects was suggested by Professor Simon Hopkins of the Hebrew University, by personal communication.

(15) CY is situated in the third step of the short vowel weakening in open syllable. See note 16.

(16) This is the second step of the short vowel weakening in open syllable. See note 16.


(22) The similar realization is attested in several bedouin dialects of Maghreb; Ulåd Bråhtim (Marçais, 1908 pp. 32–33, 36.), Territoires de Sud (Cantineau, 1941 p. 74), Mzäb (Grand’henry, 1976 pp. 22–24), Sud algérois (Dhina, 1940), ‘Arbä’ (Dhina, 1938 pp. 316–317), Houwara (Lévi-Procénçal, 1922).


(28) CA /a/: TM /i/ of the short vowel of the first syllable was brought about in considerably early period, according to Singer (1984) p. 72, due to the word final.


(30) Nouns (mainly verbal noun of form I of 3rd radical weak verb) with this form takes /a/ as stem vowel. cf. /firkhan/ “happy”: /färhan/ “happiness”.

(31) This opposition is held only by some informants (Cohen 1975 p. 59.).

(32) Ibid. p. 52.

(33) About the alternation of CA /s/: /š/, see Cohen (1975) pp. 20–26.

(34) TJ /kol]/ has a free variant /kol]/.

(35) In this form [m] is assimilated to [n] as in the case CA /matâ/ : TJ /ntâ/ “of”. See Cohen (1975) p. 44.

(36) MZ and CY know the alternation of /a/ to /i/ in very restricted cases.


(39) Ibid. p. 102.

(40) For a few exceptional cases, see II–3.2.

(41) In dialects of south Algeria and high plains of Oran. See Cantineau (1941) p. 74, Dhina (1940) and Dhina (1938), Grand’henry (1976) pp. 22–24.