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TOWARDS A DESCRIPTION OF THE VOWEL SYSTEM
OF A NORTH WEST TUNISIAN DIALECT

Abstract

In this paper, a preliminary description of the vowel system of a particular variety of Tunisian Arabic is proposed. The dialect in question is spoken in the village of Dzira, which belongs to the city of Boussalem in the extreme Northwest of the country. Like other colloquial dialects of Tunisia, the dialect of Dzira belongs to the larger Maghrebi group of spoken Arabic dialects. After establishing the vowel inventory and classifying the vowels, the author describes the phonetic, phonological and phonemic subsystems operating in the vowel system. The results arrived at are but a first approach toward a more detailed description of the vowel system in question.

1. Introductory remarks

The available descriptions of the sound systems operating in the Arabic dialects are not very satisfactory. One of the reasons for this situation seems to inhere in the linguistic methodology being applied. Linguists are somehow reluctant to make a clear distinction between systems which are based upon different properties of sounds. Hence, for example, the distinction between phonetic and phonological systems is rather declared than adequately captured. For the author, this distinction is crucial for securing any real insight into the phonetic reality of any variety of any language.

The purpose of this article then is to give a preliminary and brief account of the vowel system at work in the dialectal variety spoken in the village of Dzira, which belongs to the city of Boussalem in the extreme North West of Tunisia and which has so far not been object of linguistic research. Like all colloquial Arabic dialects of this country, the dialect of Dzira belongs to the larger Maghrebi group of spoken Arabic dialects. Hereinafter the acronym DDZ will be used to denote it.

The author of this article is a native speaker of DDZ. Her intention is thus to describe the vowel system of the dialect variety that she speaks. To this end, she will treat her idiolect as a representative of this variety. It should also be noted however that the examples contained in this article were also checked with other native speakers of DDZ.

2. **Language situation in Tunisia**

Since the subject of our inquiry concerns a particular dialectal variety of Tunisian Arabic, it seems advisable to give at least brief information on the language situation in Tunisia which is fairly diversified sociolinguistically. Currently there are three main languages in use in this country, namely:

(i) Tunisian Arabic,

(ii) General Arabic, and

(iii) French.

Within the Tunisian Arabic two lectal varieties can be distinguished, that is:

(i) Dialectal Tunisian Arabic (DTA) ,and

(ii) Pan-Tunisian Arabic (PTA) .

The DTA, a vernacular incorporating considerable regional differences, is divided in seven main dialectal groups. Besides these groups a kind of supra-dialectal variety has also developed. It will be referred to by the acronym PTA. It has yet to be standardized. This variety exists thus far only in spoken usage and is encountered in certain TV and radio programs, school instruction, and in the speech of educated people both in formal and informal situations.

General Arabic (also called Modern Standard Arabic) also functions in two lectal varieties. They are:

(i) Pan-Arabic (PA) , and

(ii) Tunisified General Arabic (TGA) .

The former term denotes an Arabic lect which should be understandable for every member of the Arab world and which is viewed as neutral by the speakers of all Arabic lectal communities. Or, in other words, the Pan-Arabic lect should be perceived as neither egyptified, or iraquified or syrified etc. However, the question arises whether such a lect already really exists and is not merely a linguistic fiction or a creation of Pan-Arabic aspirations. The latter term simply denotes a Tunisian version of General Arabic, upon which DTA has left its mark.

The communicative survival of Tunisian people in the world today requires them to be polyglossic. Although some of them are still monolingual, the vast majority belongs to several language and lectal communities at the same time.

Within the Tunisian community using French two sub-communities can be distinguished, that is:

(i) Bilingual French community, and

(ii) Diglossic French community.

The members of the former have equal or almost equal knowledge of both Arabic and French. Consequently, they can use both languages in any communicative situation. The latter community is comprised only of those Tunisian speakers who, in certain communicative situations, are able to avail themselves only of Arabic while in other situations only of French.

However, what complicates the description of the colloquial Tunisian speech is the fact that one and the same Tunisian speaker may use at the same time a kind of heterogeneous lect which incorporates elements taken from various lects belonging to three languages in question. Thus, the colloquial Tunisian vernacular is permeated with elements which are alien to it. Nevertheless, The Tunisians are aware of the differences between their modern vernacular and the Modern Standard Arabic, and the more so the French. And this in turn seems to testify to the coexistent language systems present in the language consciousness of the contemporary Tunisians.

3. Vowels of DDZ and their features

3.1 General information

In order to prepare a solid ground for the subsequent inquiry into the vowel system of DDZ the set of vowel phones should be given first. The description of these phones will be carried out in articulatory terms. However, the author did not want to rely only on her own dialectal competence. With this in mind she turned to several colleagues, trained in foreign language phonetics, to help her identify the particular phones of her dialect. This enterprise required a considerable amount of

time and patience, since the precise determination of the articulatory properties of phones, in particular of vowels, was very tedious.

The set of vowel phones will be presented in the form of an inventory. And, next it will be mapped onto the positions in the articulatory quadrilateral, with the purpose of making the properties of vowels more conspicuous. Subsequently, some classifications of the vowels will be given, and the particular vowel subsystems discussed. For the time being the loan words from foreign languages will not be taken into consideration.

The concept of the vowel system will be understood here as a pair comprised of the set of all vowels and relevant relations binding these vowels. These relations are based upon the corresponding properties of vowels. In order to fulfill their phonological and phonemic functions the vowels must display certain phonetic properties. Within the vowel system three kinds of subsystems will be distinguished, that is:

(i)   phonetic,

(ii) phonological, and

(iii) phonemic.

The functioning of the phonemic subsystem is based upon the phonetic and phonological subsystems. The relations of the phonetic (articulatory) opposition, free variation, and complementary distribution are characteristic of the phonetic subsystem. The relation of phonological opposition is constitutive for the phonological subsystem. And, the relation of homophonemicity makes the operation of phonemization possible.

Thus, the author has deliberately adapted a different approach to the vowel system in question, than it is usually applied in the descriptions of the sound systems of Arabic dialects.

3.2 **Vowel inventory**

The initial basis for this analysis of the vowel system operating in DDZ will be thus formed by the inventory of vowel phones set up for this dialect. The occurrence of each vowel phone listed in this inventory will also be exemplified with words of

which it is a constituent. However, it should be born in mind that this inventory has for the time being solely a preliminary character, since it may yet require certain corrections.

The problem which constantly surfaced during the identification of vowels was the determination of their precise but still phonetically relevant quality. This problem raises the question of how fine vowel distinctions should be registered in order not to fall into phonetic extremism but to remain within reasonable bounds. However, it is not easy to determine the utmost but safe limit beyond which the abundance of diversity obfuscates rather than clarifies the description of phonetic reality. For the sake of comparison we adduce also Arabic counterparts of Dzira words.

Short vowels

Vowels	Examples	English translation
[i]	jid	hand
[ɪ]	bɪrʃni:	female kid (goat)
	mɪgjɛ:s	bracelet, anklet
[ɛ]	ħnɛʃ	snake
	bɛglɛ	sunstroke
[æ]	ħædrɛ	lowlands, dip in the road
	dæm'ɛ	teardrop
[a]	karhba	car
	karmu:s	figs
[ɑ]	mṭar	rain
	qɑlb	heart
[ɨ]	gɨdmɛ	bite (of bread)
	kirʃ	organs of the stomache cavity
[ə]	xlɪ:lə	close friend, lover
[ɜ]	msɜħ	scrub
[u]	ɣunʒɛ:jɛ	spoon
	muflɪs	bankrupt person
[o]	ktob	books

	zokra	shawm (kind of reed instrument)
[ɔ]	nɔxzɔr	I look at, watch
	gɔrṭ	green hay

Long vowels

Vowels	Examples	English translation
[i:]	smi:n	fat
	li:lɛ	one night
[ɪ:]	mɪ:sɛ:liʃ	okay?,okay!
	rgɪ:ga	thin (fem.)
[e:]	ge:l	he said
[ɛ:]	wɛ:ʃ	what?
	sɛfsɛ:ri:	traditional female dress
[æ:]	ħæ:jsɛ	messy (fem.)
	xæ:li:	mother's brother
[a:]	tra:b	earth, soil
	nawwa:ra	flower
[ɑ:]	ħrɑ:jir	hard working women
	qrɑ:ja	school attendance, learning
[u:]	flu:s	money,
	ħru:z	(written) good luck charms

3.3 Vowel quadrilateral

In order to relate the vowels set up for DDZ to the vowel positions as specified by the Cardinal Vowel Diagram these vowels will be mapped onto the following quadrilateral which graphically accounts for two articulatory dimensions, that is:

(i) horizontal tongue position (HTP) , and

(ii) vertical tongue position (VTP) .

From this quadrilateral the relevant articulatory properties of vowels regarding only these two articulatory dimensions can be derived.

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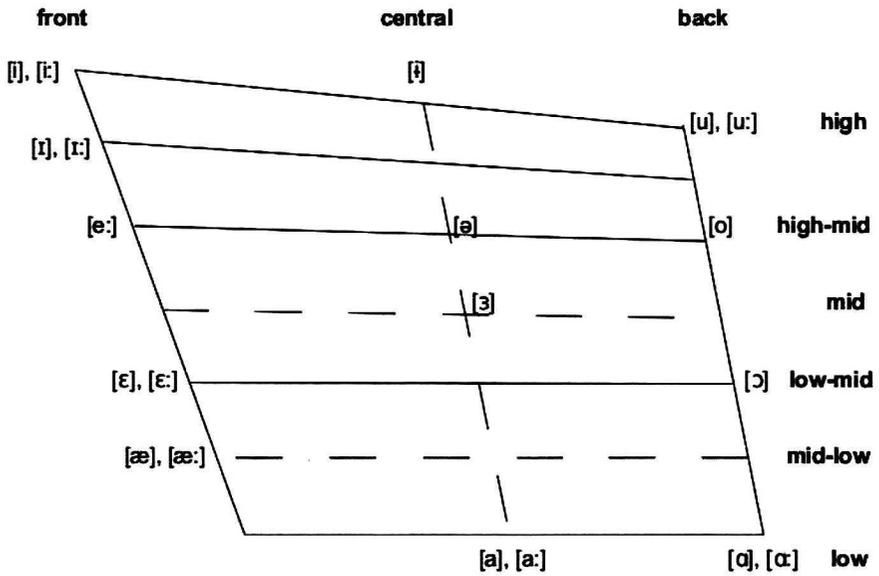
4. Vowel classifications

Under the term of classification the division of a set in disjoint subsets will be understood. As can be inferred, each articulatory dimension specifies the corresponding classification of vowels. If a classification of vowels is accomplished with respect to exactly one dimension it will be called *mono-dimensional*. If however it is accomplished with respect to more than one dimension it will be called *polydimensional*. This latter is always specified by a corresponding sequence of dimensions.

4.1 Monodimensional classifications

The dimension HTP specifies the following three classes of vowels:

Front	Central	Back
[i], [iː]	[ɨ]	[u], [uː]
[ɪ]		
[eː]	[ə]	[o]
[ɛ], [ɛː]	[ɜ]	[ɔ]
[æ], [æː]		
	[a], [aː]	[ɑ], [ɑː]

The dimension of VTP specifies the following seven classes of vowels:

High	Mi-H	H-M	Mid	L-M	M-L	Low
[i], [iː], [ɨ]	[ɪ], [ɪː]	[eː]	[ə]	[ɛ], [ɛː]	[æ], [æː]	[a], [aː]
[u], [uː]		[o]	[ɜ]	[ɔ]		[ɑ], [ɑː]

The dimension of duration in time specifies the following tow classes of vowels:

Short	Long
[i], [ɪ], [ɨ], [u]	[iː], [ɪː], [uː]
[ɛ], [ə], [ɜ], [o], [ɔ]	[eː], [ɛː]
[æ]	[æː]
[a], [ɑ]	[aː], [ɑː]

As can be easily noticed, not all short vowels have their long counterparts.

5. Phonetic systems

By the phonetic vowel system, a pair consisting of the set of all vowels and all the relevant phonetic relations which bind these vowels will be understood. Phonetic

relations are based only upon the phonetic properties of vowels. These properties are of two kinds, that is, they derive either from:

(i) the phonic substance of vowels, or

(ii) the occurrence of vowels within sound chains.

In what follows three such relations will be considered, and namely:

(i)   the relation of phonetic (articulatory) opposition,

(ii) the relation of free variation, and

(iii) the relation of complementary distribution.

The first of these relations will be thus based upon the articulatory properties of vowels whereas the two other on their distributional properties. Each of these relations will specify the corresponding phonetic subsystem within the phonetic vowel system.

5.1 Articulatory opposition

Having associated each vowel with its articulatory features or, in other words, with its articulatory characteristic, it will be possible to compare these vowels just with regard to these characteristics.

Every two vowels differ at least in one articulatory dimension, which is equivalent to saying that they are bound by the relation of articulatory opposition. This relation is thus identical with the set of all pairs which consist of two different vowels. Since there are 20 vowels in DDZ, the relation of articulatory opposition is comprised here of 190 this vowel pairs. It should also be stressed that this relation should be kept distinct from the relation of phonological opposition.

For the sake of exemplification only certain vowel pairs belonging to the relation of articulatory opposition in DDZ will be adduced below.

Ex: ([i],[ɪ]) , ([i],[u]) , ([i],[ɨ]) , ([i],[ə]) , ([i],[ɜ]) , ([i],[æ]) , ([i],[a]) , ([i],[o]) , ([i],[ɔ]) , ([i],[ɑ]) , …

5.2 Vowel distribution

The concept of distribution will be applied here in the spirit of linguistic structuralism. Consequently, by the *distribution of a phone* the totality of all different

environments (positions) in which this phone occurs will be understood (cf. Harris 1960: 15f; Batóg 1967: 90 ff). With this concept, it is possible to introduce the relations of:

(i) free variation, and

(ii) complementary distribution.

These two relations in turn will be necessary for the operation of phonemization.

Phones of every language may be compared with regard to their distributions. The distribution of two phones may be either:

(i) the same or

(ii) different.

However, availing oneself only of distributional sameness and difference is inadequate, since the distributions of two phones may be either:

(i) totally or partially the same, and

(ii) totally or partially different.

It is obvious that partial distributional sameness and partial distributional difference are equivalent to each other.

5.2.1 Free variation

The aspect of the identical distribution of phones is reflected in the concept of free variation. If the distributions of two phones are the same, that is, if they occur in exactly the same positions, then these phones are said to bear the *relation of free variation* to each other or, in other words, one of these phones is a free variant of the other (cf Harris 1960: ff; Batóg 1967: 93; Bańczerowski et al. 1981: 173 f.).

However, since the distributions of two phones can either totally or only partially coincide, two kinds of free variation are distinguishable, that is to say:

(i) total free variation, and

(ii) partial free variation.

In this latter case the phones will share only some environments. Consequently, in certain positions both phones can occur while in other positions only one of them may appear.

[i], [ɨ] – bint 'daughter', bɨnt 'daughter'

[a], [ɑ] – barʃa, 'many, much', bɑrʃɑ 'many, much'

[u], [o] – nuṣ 'half', noṣ 'half'; fursa 'occasion', forṣɑ 'occasion'; buʃra 'happy
      information', boʃrɑ 'happy information'

[o], [ɔ] – mṭor 'rainy', mṭɔr 'rainy'

[iː], [ɨː] – biːt 'house, home', bɨːt 'house, home'; liːlɛ 'one night', lɨːlɛ 'one night'

5.2.2 Complementary distribution

    If the distributions of two phones are disjoint, that is, if their environments are mutually exclusive, then these phones are said to be bound by the relation of complementary distribution or, equivalently, they are complementary to each other. This concept of complementary distribution presupposes thus that the environments of two phones are totally different. However this may not always be the case.

    In the dialect of Dzira it can be observed that some phones are complementary to each other in certain positions whereas they have other positions in common. The following pairs of phones exemplify this situation:

[a], [ɑ] – gaṣba ' musical instrument', mlak 'angel', ʃnuwwa 'what', mayya 'water',
      karhba 'car', maktuːb 'designed'; ṣbɑr 'was patient', mṭɑr 'rain', qɑlb 'heart'

[u], [o] – ful 'kind of flower (plural)' fum 'mouth, xobza 'bread', ħmor 'red (plural), ħrom
      'forbidden',   qorṭaːṣ 'a packet of sth', mox 'wisdom'

[a], [ɛ] – bar 'area (of a place)', barka 'enough', maɣsɨl 'washbasin'; fɛllɛ ' way to
      escape' , xɨdmɛ 'work, job'

[a], [æ] – ṣoħba 'friendship', darbuːka 'musical instrument', ħaras 'police, policeman';
      ħæl 'solution' ,dæmˈɛ ' teardrop', ðhæb 'gold'

6. The phonological system

    The phonological vowel system will be conceived of as a pair consisting of the set of all vowels and the relation of phonological opposition. This relation will be defined as follows. Two phones *X* and *Y* are bound by the *relation of phonological opposition*, if and only if they are bound by the relation of phonetic opposition, and

additionally they occur in two words, respectively, and these words form a minimal pair, that is, they convey different meanings.

In DDZ the following pairs of vowels belong to the relation of phonological opposition.

[ɪ], [ɛ] – dɪb 'walk (away), bear!', dɛb 'left, not be at place'; bɪl 'make it wet!', bɛl 'made it wet'

[ɪ], [æ] – sɪl 'pull out (for example a weapon, a tooth)!', sæl 'he pulled out (for example a weapon, a tooth) ; ħɪl 'open!', ħæl 'he opened'

[ɪ], [a] – fɪr 'walk (away), bear!', far 'left, not be at place'; mɪrra 'skin illness', marra 'once'

[ɛ], [u] – fɛl ' to escape', ful 'kind of flower (plural)'

[ɛ], [ɨ] – kɛf 'palm (of the hand), slap', kɨf 'stop it!'; dɛz 'he pushed, he shoved', dɨz 'push!, shove it!'

[ɛ], [o] – kɛl 'was fed up, had enough', kol 'every thing'

[ɛ], [ɛ:] – ħbɛl 'rope', ħbɛ:l 'ropes'; kɛf 'palm (of the hand), slap, he stopped', kɛ:f 'moutain slope'

[ɛ], [u:] – ħnɛʃ 'snake', ħnu:ʃ 'snakes'

[æ], [ɨ] – ðhæb 'gold', ðhɨb 'left, not be at place'; ħæb 'gusted (of wind), he appeared suddenly'', ħɨb 'gust! appear!'

[æ], [o] – ħæb 'he fell in love', ħob 'love (noun)'; fæl 'left, not be at place', fol ''kind of flower (plural)'

[æ], [æ:] – ħæl 'he opened', ħæ:l 'health, life'

[a], [ɨ] – qlab 'he turned a way', qlɨb 'he stole'; qbal 'a long time ago', qbɨl 'he accepted'

[a], [o] – ħfar 'he made a hole (to plant sth...)', ħfor 'holes (for seeds; fenceposts)'; ħṣar 'he closed, blocked in s.o.', ħṣor 'straw mat'

[a], [ɔ] – marra 'one time', mɔrra 'bitter (fem.)'; xalṭa 'mix (of things)', xɔlṭa 'bad influence (on s.o.)'

[a], [i:] – bar 'area (of a place), bi:r (water) well; fa:q 'he woke up', fi:q 'wake up!'

[ɑ], [ɨ] – 'ɑʒlɛ 'wheel', 'ɨʒlɛ 'heifer'

[ɑ], [i:] – ʃɑr 'hair', ʃi:r ' kind of grain'

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[ɑ], [ɑ:] – qɑl 'was reduced', qɑ:l 'he said, he left s.o. be'; rbɑṭ 'he tied sth, s.o.', rbɑ:ṭ 'rope for tying sth to sth'

[ɨ], [o] – gdɨm '(sth) aged, heel', gdom 'old (of things); qɨblɛ 'qible (direction of Muslim prayer)', qoblɛ 'kiss'

[ɨ], [i:] – rabbɨt 'she raised (s.o., sth)', rabbi:t 'I raised (s.o., sth)'

[ɨ], [ɛ:] – gɨd 'take care (of sth)!', fit, gɛ:d 'readiness, capable (of sth); hbɨl 'he went mad', hbɛ:l 'madness'

[ɨ], [æ:] – ħɨl 'open!', ħæ:l 'health, life'; sħɨb 'he withdrew (money), took back, sħæ:b 'clothes'

[ɔ], [ɑ] – bɔṣ, 'fart!',bɑṣ 'he farted'

[o], [a:] – ħrom 'was forbidden, a ban (on sth)', ħra:m 'forbidden'; ħmor 'red', ħma:r 'he became red', donkey

[i:], [ɛ:] – bli:d 'spoiled (of a child)', blɛ:d 'spoiled (of children)', country

[i:], [u:] – li:l 'night', lu:l 'first'; sni:n 'years', snu:n 'teeth'

[ɛ:], [ɪ:] – bɛ:s 'he kissed', bɪ:s 'bonbons',

[ɛ:], [a:] – ħrɛ:m 'traditional womens garment', ħra:m 'forbidden'

[ɛ:], [u:] – zɛ:z 'he entered', 'go in!' zu:z 'two'; ʃkɛ:n 'why not? what happened? what's going on?', ʃku:n 'who?'

[æ:], [ɪ:] – ħæ:lɛ 'situation, health', ħɪ:lɛ 'getting around (of rules)'; ħsæ:b 'bill, piece of business, sth to be discussed, worked out', ħsɪ:b 'overseer, God'

[æ:], [u:] – gæ:l 'he said', gu:l 'say!'; sæ:m 'he asked the price of sth, bargained', su:m 'price'

[a:], [u:] – da:r 'house, he circled it', du:r 'circle it!'; sa:g 'he drove', su:g 'drive!', traditional market

[a:], [ɪ:] – ṭwa:l 'tall (pl)', ṭwɪ:l 'tall (masc.)'; ma:l 'he leaned', mɪ:l 'lean!'

7. The phonemic system

With the purpose of establishing the phonemic system for DDZ the relation of homophonemicity (cf. Batóg 1967: 97ff; Bańczerowski et al. 1981: 178ff.) shall be

availed of. Stating that two phones are homophonemic will be treated as equivalent to saying that these   phones belong to the same phoneme.

The properties of the relation of homophonemicity will be determined by the following six postulates.

Postulate of equivalence

The relation of homophonemicity is an equivalence on the set of all phones. Consequently, this relation specifies the corresponding classification of phones.

Postulate of free variation

If two phones are bound by the relation of free variation, then they are homophonemic.

Postulate of phonological opposition

If two phones are bound by the relation of phonological opposition, then they are not   homophonemic.

Postulate of complementary distribution

If two phones are homophonemic, then they are either free variants of each other or complementary to each other.

Postulate of phonetic distinction

If □ is a homophonemic class, then the set of all features shared by the phones belonging to □ differs from the set of all features shared by the phones belonging to any other homoponemicity class.

Postulate of economy

The classification of the set of phones induced by the relation of homophonemicity must be the least numerous.

The application of the above six postulates to the set of vowels of DDZ determines the operation of phonemization which transforms this set into the corresponding family of phonemes.

In the following table the phonemes of DDZ and their allophones are enumerated:

Phonemes	Allophones
/a /	[ɑ], [a], [æ], [ɛ], [ə], [ɜ]
/i /	[i], [ɪ], [ɨ]
/u /	[u], [o], [ɔ]
/i: /	[i:], [ɪ:]
/u: /	[u:]
/a:/	[ɑ:], [a:], [æ:], [ɛ:]

Of course, The results of the phonemization operation applied to the phones of Dzira as presented above should be viewed as merely tentative and so open to correction.

8. Concluding remarks

Any effective phonetic/phonological/phonemic comparison of spoken Arabic dialects presupposes an in-depth inquiry into their phonic reality carried out in terms of the same meta-language. The three vowel subsystems postulated for DDZ and examined above have of necessity a preliminary character. In spite of my long term efforts and the help I received from colleagues during research on this dialect many problems could still not be satisfactorily clarified. In particular the precise determination of the quality of some vowels seems to be more desired than practically achieved yet.

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