

CHANGES IN THE PHONOLOGICAL PERCEPTION OF CLASSICAL ARABIC

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0 Summary

There are two intimately related dictionaries of Arabic, *Kitāb al-ʿayn* by al-Ḥalil (101-175/719-793), and *Kitāb Ġamharat al-luġa* by Ibn Durayd (223-321/837-933). In addition, the two books also include treatises on the phonologies of Arabic of their day. The treatise in *Kitāb al-ʿayn* is, presumably, the first Arabic phonological treatise that has come down to us. It gives an overall schema of the phonological inventory of Arabic of the eighth century Baṣra. The treatise in *Kitāb Ġamharat al-luġa* provides an overall schema of the phonological inventory of Arabic of the ninth/tenth century Baṣra. This is a unique situation in two aspects. Firstly, the lexicographer, Ibn Durayd, took the eighth century dictionary of al-Ḥalil, re-arranged it according to patterns of Arabic words in a new fashion. Secondly, he included his own phonological introduction at the beginning to give his users an explanation of the letters and their use in the dictionary.

This presentation will not dwell on the lexicological aspects, but it will discuss the phonological treatises that both authors pre-pended to their dictionaries, in order to point out some of the similarities and differences between the two. Each author offered his own system of the basic divisions of the vocal tract and the classification of the sounds of Arabic into subgroups that shared phonetic properties. The authors offer sufficient detail to provide a reasonable conjecture on how Arabic was pronounced, and what some of the divergences were among speakers from different linguistic periods. In the process one can observe what was preserved of the eighth century tradition, its theoretical framework, its terminological apparatus, and what had been changed, or so perceived, by Ibn Durayd.

1 Introduction

The symbiosis that exists between al-Ḥalil and Ibn Durayd is their cultural heritage. They are about a century apart, and the debt of the second to the first is admitted right up front. Ibn Durayd embarked on re-doing and re-writing al-Ḥalil's dictionary from his own perspective. *Kitāb al-ʿayn* of al-Ḥalil is the first comprehensive dictionary of Arabic as we define dictionaries now; so is *Ġamharat al-luġa* a comprehensive dictionary by our definition. They both account for the lexical items of Arabic as comprehensively as was possible within the expanse of each authors's

knowledge of the language and culture of their respective generations. There were aspects of *Kitāb al-'ayn* that Ibn Durayd was not satisfied with, so he decided to rectify the deficiency by rewriting the whole dictionary.

The above episode is reminiscent of the story told about Händel's Messiah. Händel (1685-1759), composed the Messiah 1741. Mozart (1756-1791) re-arranged the Messiah for a performance in 1789 (Mackerras 1974:3-4). By musical and artistic criteria this is considered a new musical creation. Young Mozart was asked by Baron Gottfried van Swieten (1733-1803), who had come to appreciate Händel when he was a diplomat in England, for a performance of Händel's Messiah. It was performed March 6th, 1789. Mozart liked and admired the composition, but being a person of his generation, he found certain aspects of the Baroque composition not to his liking. So to bring the piece into greater harmony with the more contemporary taste and style, he re-arranged and reworked many of its parts. Sections were interchanged, transposed, lengthened or shortened, the score was adapted in many of its parts, the instruments were interchanged, and solo parts shifted. The point of all that was to make it more acceptable to the intended audience. The outcome of this effort was that now we have two unique masterpieces of music. Mozart's Messiah is Händel's Messiah without the trumpets, to put it simply.

Though the above appears like a digression, it has its parallel to the case at hand. So, a very brief summary of the structure of the two dictionaries may not be out of place. al-Halil composed his dictionary on the basis of definite linguistic principles that he found relevant to the structure of Arabic. His guiding principles were: the number of Arabic letters, the restrictions on their combinations, the resultant small set of possible basic patterns, and the phonological matrix that defined the whole enterprise. This, in effect, stated that the inventory of native lexical items in Arabic was limited to four patterns of letters: bi-radical, tri-radical, quadri-radical and quinque-radical. To these patterns, affixes were added to specify the many forms and meanings of the derivations and inflections of the language. The number of patterns, however, was limited and finite. The permutations within these patterns, eventually, accounted for all the lexical items in the language. The governing matrix for the arrangement of the dictionary was phonological. For this purpose al-Halil pre-pended a phonological treatise to his dictionary. In this treatise he described each Arabic letter articulatorily, beginning with the pharyngeals and ending with the labials (Sara 1993). The significance of the phonological treatise for the lexicon was that it guided the user on how the dictionary was organized, how the lexical items were created, and how they were entered into the dictionary. Consequently, the phonological analysis of Arabic had a profound influence on the creation of the lexicon. There was a harmonious integration of the phonological inventory and phonological restrictions with the structure of the lexicon.

Ibn Durayd, on his part, paid great tribute to al-Halil and his contribution to Arabic lexicography, but he thought that the structure of the dictionary could be

simplified, and its use made even easier for the contemporary user, if it were redone in a more accessible manner, and closer to the more traditional frame of reference. Ibn Durayd accepted the abstract formalisms of al-Halil with reference to the number of radicals in the stems of Arabic words. His arrangement, however, departed from al-Halil's in that he grouped together all the tri-radical stems, all the quadri-radical stems and all the quinque-radical stems. al-Halil, for his part, had been more respectful of the autonomy of each letter, under which he listed all the occurring forms. In al-Halil, each letter included all the patterns and their various permutations that began with that letter, e.g. *ktb, kbt, tkb, tbk, bkt, btk*. A second major departure was that Ibn Durayd did not follow the phonological schema of the phonological structure of Arabic that he had discussed in the beginning of his dictionary. He effectively ignored it, and it had no practical bearing on the composition of the dictionary. The dictionary is not based on the phonetic organization of the letters nor their sequencing. Unlike al-Halil, the letters of Arabic do not have their individual chapters dedicated to them where pertinent forms are included. Rather, it is the number of radicals in the stem that is the dominant organisational principle. Consequently, all the tri-radicals are listed together, all the quadri-radicals, etc. It is a fact, that Ibn Durayd provides a phonetically/phonologically oriented organization of the letters of Arabic in the beginning of the dictionary, but what use was that mode of arrangement of letters, when he completely ignored it, and followed the traditional order of the letters of the alphabet which is *alif, bā', tā'*, etc. That was a bold departure from the linguistically motivated organization of al-Halil's dictionary. From a historical perspective, the importance of the phonetic/phonological preface is its existence, and the information it provides about the sounds of Arabic of its time.

2 The Phonology of al-Halil

Though necessary and interesting as the discussion of these two dictionaries is as a context for Arabic phonology, the focus of this presentation is on the phonologies of these two authors. It is fortuitous and gratifying that Ibn Durayd considered it important to include information on the phonology of Arabic of his day. In this way, he kept the tradition alive by pre-pending his own phonological analysis. We should say "almost his own", for he says that he is synthesizing the analyses of other phonologists. In the process both authors give us a glimpse of how Arabic was spoken at their respective times. In addition, they provide us with the theoretical perspective of the linguists of their time, their terminological innovations, their organizational schemes, and, in this case, the subtle changes in the perception of how they viewed the sound system of Arabic.

2.1 al-Halil's Inventory of Letters

al-Halil arranged the letters of Arabic in a manner that followed the stream of speech, i.e. it began with the throat proceeded gradually up the vocal tract and ended with the lips (al-Halil, *K. al-ʿayn* I, 48). al-Halil's inventory of letters is schematized in Chart I that provides added organization, and al-Halil's terminological specifications of the vocal tract.

2.1.1 Chart I. al-Halil's Letters: Locales and Exits

letter / <i>harf</i> /	locale / <i>hayyiz</i> /	exit / <i>mabrag</i> /
s	1. throat / <i>halq</i> /	ʿ, ḥ, h, ḥ, ġ غ، خ، هـ، ح، ع
t	2. uvula / <i>lahāḥ</i> /	q, k ك، ق
r	3. soft-palate / <i>ṣaġr</i> /	ġ, š, d ض، ش، ج
o	4. apex / <i>asala</i> /	s, s, z ز، س، ص
n	5. alveolum / <i>niṭʿ</i> /	t, d, t ت، د، ط
g	6. gingiva / <i>litta</i> /	zʾ, t, d ذ، ث، ظ
	7. laminae / <i>dalaq</i> /	r, l, n ر، ل، ن
/sahib/	8. lips / <i>ṣafa</i> /	f, b, m م، ب، ف
weak / <i>muʿtall</i> /	cavity/air / <i>hawāʾ</i> /	w, alif, y, ʾ ء، ي، ا، و

As more features are included in the inventory, and more of the organisational aspects of al-Halil's analysis become apparent, one notices that he was aware of more than a mere listing of the discrete elements of the Arabic writing system. He was aware of the systematic relationships that obtained among the sounds of the language in grouping themselves into natural classes that share unique features. When more of the systematic specifications discussed by al-Halil are accounted for, a sophisticated appreciation of the complexity of his system is revealed. Chart II below provides a complementary list of features to the above outlined system as al-Halil described it.

* [Editorial note: For technical reasons the usual transcription system of *The Arabist* was used in this article as well instead of a phonologically more correct notation.]

2.1.3 Summary of al-Halil's Phonology

In summary, then, al-Halil's analysis is a detailed description of the sounds of Arabic. The vocal tract is divided into locales within which a number of exits are specified. The process began with the throat and proceeded, in steps, towards the lips. It accounted for all the sounds of Arabic. The descriptive terminology is intuitive and original, and the list of selected features grouped the sounds into their natural classes. The phonetic/phonological schema of al-Halil, for the most part, is in use today among Arab linguists.

3 Ibn Durayd's Phonology

Ibn Durayd discussed the phonology of Arabic in the introduction to his dictionary. In the same manner as al-Halil, he gave an articulatory description of the letters of Arabic, and gave several classificatory descriptions of these letters, as he says, synthesizing what other phonologists had done. Its practical purpose was to aid the user of the dictionary, but in the process, he not only accounted for the phonological tradition, but he added his own observations as well. Since some of the details of this analysis are given in Sara & Zawawi (1995), the following will be a summary treatment of his analysis in several of its aspects, to highlight the similarities and differences with al-Halil and his student Sibawayhi.

3.1 First Binary Division: *muṣmata* & *mudlaqa*

The first classificatory division that Ibn Durayd employed is to group the seven classes of sounds under two major headings: *muṣmata* and *mudlaqa* as in Chart III.

3.1.1 Ibn Durayd's Inventory of Letters

Chart III. Binary division of the Arabic letters

<i>/laqab/</i> class	<i>/ḡins/</i> type	<i>/harf/</i> letter
<i>/muṣmata/</i> 'silent'	1. <i>/halq/</i> throat	خ, ح, ه, ع, غ, هـ, ح, هـ, ع, خ
	2. <i>/aqṣā l-fam/</i> end of mouth & lowest part of the tongue	ق, ك, گ, گ, ش, ج, ك, ق
	3. <i>/wasat al-lisān/</i> middle of the tongue	ص, ز, س, s, z, ṣ
	4. <i>/adnā l-fam/</i> nearest in the mouth	د, ط, ت, t, t, d
	5. <i>/ṣāḥiṣ ilā l-ḡār al-a'lā/</i> nearest upper concavity	ض, ذ, ث, ظ, z, t, d, d
<i>/mudlaqa/</i> 'edge'	6. <i>/aṣ-ṣifa/</i> labial	م, ب, ف, f, b, m
	7. <i>/asalat al-lisān/</i> tip of tongue	ل, ن, ر, r, n, l

The above classification parallels, to a great extent, the classification of al-Halil. There are also obvious differences. Ibn Durayd is precise in his analysis of the throat letters. He specifically says that the /hamza/ [ʔ] is the farthest sound followed by *hā'* [h] which is the locus of the /nafas/ 'breath'. This is followed by *ḥā'* [ḥ], and here he goes into the discussion of the confusions in speech due to the interchangeability of these two letters (Ibn Durayd, *Ġamhara* I, 43). There are obvious differences between the sequencing of the exits in the two authors. *ʿayn* [ʿ] is not the first letter, as found in al-Halil. A second difference, which is of great significance, is that the *dād* [d] is not listed as a soft-palatal sound as found in al-Halil, but is considered more like an alveolar sound grouped with the sounds [z, ṭ, d]. This sound is a problematic one, since its current articulation does not correspond to what was observed by al-Halil and Sibawayhi in the eighth century. A third difference is that the labials are not listed as the last group of sounds, but are listed before the tip of the tongue sounds [r, n, l]. Finally it needs to be pointed out that Ibn Durayd has not made use of the elegant terminology devised by al-Halil in his articulatory schema of the divisions of the vocal tract into eight locales and twenty five exits as in #2.1.1 above. Those are some of the significant differences between the two authors as they perceived the pronunciation of Arabic of their time.

3.1.2 Exits of the Letters

/maḥraġ/ 'exit' is a descriptive term that denotes the narrowing of the vocal tract in the production of a letter/sound. Depending on the author, each letter or group of letters were characterized by their appropriate 'exit'. Even though Ibn Durayd was following al-Halil in writing his dictionary, and accounting for the sound system of Arabic in the manner of al-Halil, he included, in addition, another analysis that was not similar to al-Halil's analysis. Ibn Durayd listed sixteen exits for the production of the letters which corresponded more closely to the listing of Sibawayhi than that of al-Halil, and which are included here in chart IV below:

Chart IV. Sibawayhi's classification according to exits

Upper Articulator	Letter	Lower Articulator
throat: farthest	1. ' , h, alif	throat: farthest
middle	2. ʿ, ḥ	middle
closest	3. ġ, ḥ	closest
palate: farthest	4. q	tongue: farthest
pre-farthest	5. k	lower than /q/
palate: above molars	6. ḍ	Tongue: beginning of edge
palate: middle	7. ġ, ṣ, y	tongue: middle
palate: above premolars canines and incisors	8. l	tongue closest edge to tip
palate: above incisors	9. n	Tongue: edge
palate: above incisors	10. r	tongue: surface inner to /n/
palate: base of incisors	11. ṭ, ḍ, ṭ	tongue: tip
palate: above incisors	12. z, s, ṣ	tongue: tip
palate: tip of incisors	13. z, ḍ, ṭ	tongue: tip
tongue: tip of incisors	14. f	Lip: inner lower lip
lip: upper	15. b, m, w	lip: lower
nose	16. n (light)	nose

The second classification of the letters of Arabic by Ibn Durayd is included as Chart V below. Even though it was not as detailed as that of Sibawayhi, it followed Sibawayhi's model and shows a great similarity to it:

Chart V. Ibn Durayd's classification of exits

Cavity	Exit	Letter
throat	1. lower part	h, ʾ, alif ه , ا , ع
	2. middle part	ç, h ج , ح
	3. upper part	ğ, ħ خ , ح
m	4. farthest	q, k ك , ق
	5. uvula	ğ, š ج , ش
o	6. middle of tongue	y ي
	7. side of tongue/upper incisors	s, z, ş ص , ز , س
u	8. right edge of tongue	n ن
	9. right edge close to /n/	l ل
t	10. close to /n/ but inner	r ر
	11. edge of tongue, base of incisors	t, d, ð ط , د , ذ
h	12. inner lower lip	f ف
	13. between the lips	w, b, m م , ب , و
	14. light /n/	n ن
	15. edge of tongue/edge of incisors	z, ð, d ذ , ث , ظ
	16. middle of the tongue/ right edge	d ض

In the above classification, the letters are listed according to their exits. Ibn Durayd claimed that he was giving the opinion of other linguists (Ibn Durayd, *Gambara* I, 45). The above chart reflects the classification of Sibawayhi (*Kitāb* II, 405). Needless to say there are some differences between the two linguists. As he did with the classification of al-Halīl, Ibn Durayd was not meticulous about maintaining the original classification of Sibawayhi, according to the expected articulatory progression, from the throat to the lips, in the production of these sounds. Firstly, the [q] and [k] are two separate exits in Sibawayhi, here they are grouped as one exit. Secondly, he considers /ğ, š/ uvular sounds which can easily lead to confusion if one considers that /q, k/ are the farthest sounds and the uvula is the farthest section of the upper perimeter of the oral cavity. Thirdly, he places /d/ 16th in his listing, i.e. in the final position, while in Sibawayhi it is the 6th in the list just after /k/. This despite the fact that he calls it a middle of the tongue letter. This may be an organizational slip more than an articulatory misapprehension. This strict organizational slip creeps up again towards the end of the listing where labial letters are listed before the lingual and dental letters. It is stated in the dictionary that Ibn Durayd dictated his dictionary from memory, so one can imagine the burden placed on memory with all the details. This may be an explanation for the variations in representing the accounts

by other linguists, as he called them. The other aspect is to consider Ibn Durayd as a faithful observer of the passing scene. He is a witness to some of the sounds of the language that are beginning to shift their articulations. A clear example of this shift is the /d/ sound. He described it in two different ways. When he represents what appears to be al-Halil's position, he clearly lists it with the apicals/dentals /z, t, d/ without any qualification. While here, in representing what appears to be Sibawayhi's position, even though he states that the articulation is produced by the middle of the tongue, he still lists it immediately after the /z, t, d/ cf. Chart V. This letter /d/ did change its position in time, and he may have been the first witness to record the shift in its articulation. In its current realizations, for example, it has maintained its fricative nature in the standard Arabic spoken in Iraq, but it has become an apical letter. On the other hand, it has changed its fricative nature into a stop, and it has become apical in articulation in the standard Arabic spoken in Egypt. An overall perception one obtains in reading Ibn Durayd is that in his articulatory descriptions he emphasized the active articulators more than the passive articulators, and thus many of his descriptions are at variance with his sources.

4 Features

Like his predecessors, Ibn Durayd, finds other classificatory criteria for grouping the letters together. In addition to the articulatory descriptions, groupings according to locales or grouping according to exits, the letters of Arabic with different locales and exits can still have features in common, and can be grouped together into smaller or larger natural class. Since Ibn Durayd appears to be following Sibawayhi in this respect, Charts VI and Chart VII of the commonly treated classificatory features by both authors is included for comparison purposes.

Chart VI. Partial feature matrix of Sibawayhi

Feature	Letters
<i>mahmūs</i> 'muted'	h, ḥ, <u>h</u> , k, š, s, t, š, <u>t</u> , f
<i>mağḥūr</i> 'loud'	', alif, ʿ, ḡ, q, ḡ, y, <u>d</u> , l, n, r, t, d, z, z, <u>d</u> , b, w, m
<i>riḥwa</i> 'soft'	h, ḥ, ḡ, <u>h</u> , š, s, d, z, s, z, <u>t</u> , <u>d</u> , f
<i>madd & layn</i> 'long & soft'	w, y
<i>mutbaqa</i> 'covered'	š, <u>d</u> , t, z
<i>šadīda</i> 'tight'	', q, k, ḡ, t, t, d, b

In order to fully appreciate how Ibn Durayd treated these features his classificatory features are listed in Chart VII.

Chart VII. Feature matrix of Ibn Durayd

Feature	Letters
<i>mahmūs</i> 'muted'	h, ḥ, k, ḥ, s, š, ṭ, ṣ, t, f
<i>mağhūr</i> 'loud'	ʾ, alif, ʿ, ġ, q, ğ, y, d, l, n, r, z, d, d, t, z, b, w, m
<i>riḥwa</i> 'soft'	h, ḥ, k, ḥ, s, š, ʿ, ġ, ṣ, d, d, z, ṭ, f, z
<i>madd & layn</i> 'long & soft'	w, y, alif
<i>mutbaqa</i> 'covered'	s, ṭ, d, z
<i>šadida</i> 'tight'	ṭ, š, ğ, etc

Ibn Durayd's treatment of these features and their exemplifications do not seem to be a literal listing of his sources. It is rather a gesture towards accountability, but no systemic procedure is evident in the organization of the sequence of segments. The sequential listing of the letters is not what one finds in the other two sources. He did not seem to be interested in giving an exhaustive listing of either all the features or all the relevant letters as in the example of "*šadida*". There are differences that call for comment. Firstly, the inclusion of [k] with the "*riḥwa*" is out of character with the rest of the included letters. The "*riḥwa*" letters are all of the fricative or continuant type, [k] is not of that type, and there does not seem to be any clear explanation for this inclusion. Similarly, the letter [š] is included in the unfinished listing of "*šadida*". The "*šadida*" feature in Sibawayhi includes only the non-continuant type of letters, and the inclusion of [š] among them is not easily understood or explainable.

5 Final Observations

It appears from the discussion of Ibn Durayd and his bold attempt to rewrite what was a unique and original composition that he would have been memorialized in the annals of lexicography. In addition, his phonetic/phonological discussions witness to a continuing dynamic tradition that was not slavish to an immutable doctrine of phonetics and phonology. It is quite clear that discussions took place espousing different orientations. In the report of Ibn Durayd, there is no clear favoritism towards al-Ḥalil or Sibawayhi's approach. He gives them both equal treatment, albeit, neither complete nor exhaustive. In the process of discussing the theories of other linguists, he provides a description of Arabic that is not an exact replica of his predecessors.

He is, presumably, describing his own speech with the tools of linguistics, and if his articulation is at all representative, it shows sound shifts that will become part of the spoken Arabic in subsequent centuries. The most obvious case is that of /d/. The other changes are more subtle. They need more space, and a more comprehensive and detailed analysis of the totality of his work.

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