IBN JINNI'S CONTRIBUTION TO LINGUISTICS AND PHONETICS

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INTRODUCTION

The tenth century A.D. witnessed a tremendous surge and expansion in all sectors of Islamic scholarship both quantitatively and qualitatively. Arabic linguistic and phonetic scholarship is no exception. Towards the middle of the century, Ibn Jinni(d. 1001), an Arab Muslim pioneer in linguistics and phonetics advanced various ideas in these fields including their descriptive-interpretative techniques, methodology, technical terminology, definitions, as well as statements of universal validity. Most of these and other notions are scattered in some fifty works of his, especially ***Sirr Sina^{c} at al-I^{c}rab*** abbreviated as *SS*[1] and ***Khasa?is***[2]. Only some general linguistic and phonetic issues are discussed below.

DEFINITION OF LANGUAGE

Being aware of the numerous languages of the Islamic Empire of his time, Ibn Jinni(IJ) defines the human language as follows:"Language is a set of sounds which are used by each community to express their ideas and intentions". Although modern linguists usually emphasize the arbitrary nature of the sound system of all languages, IJ appears to be aware of this fact and the social role of language too[2].

ORIGIN OF LANGUAGE

IJ presents the three theories about the origin of language, which are current amongst his contemporaries. (1) Languages is of divine origin;(2)Language is a convention based on social agreement between two or more people in one and the same community; and (3) Language origin is based on onomatopoeic consideration where the adherents to this theory advocate the idea that languages started as a result of imitating the sounds in nature such as the roaring of the wind, the crashing of thunder, the murmuring of water, the braying of donkeys, the cawing of crows, the neighing of horses, etc.[2]. He seems to subscribe to each of the three theories though he acknowledges that most learned men adhere to the second one.

SOUND SYMBOLISM

IJ is considered to be the founder and proponent of a theory known in Arabic morphology as the ***major etymology***. He observes that certain words clearly show a kind of natural association between sounds and meaning. According to him no matter in what order their radicals may occur, certain consonantal roots are connected with a main

concept or common meaning. However, he admits that only a small portion of the vocabulary displays this symbolism[3].

DEFINITION OF VOCAL SOUND

IJ defines the vocal sound as "a perceptible though fleeting event which accompanies the pulmonic air-stream and lasts as long as it continues. Whenever the air passage is obstructed in the throat, mouth or lips, the sound resulting from the obstruction by the articulators is called ***huru:f***. The sounds or timbres of ***huru:f*** differ from each other according to their places of articulation"[1]. Here he alludes to the two major classes of speech-sounds, namely the vowels(V's)whose production is characterised by having free air passage; and the consonants(C's) which have varying degree of obstruction as treated separately by him later. Also, reference is made here to the various points of articulation along the vocal tract, which will be dealt with below. Underlying his distinction between ***?aswa:t***(sounds) and ***huru:f***(phonemes) is what in modern phonetic terminology is referred to as allophones and phonemes, respectively. This explanation can be substantiated by a newly-coined term he introduces for the first time viz. ***ʿilm ?aswa:t wa huru:f***, meaning the science of phonetics and phonology[1].

SPEECH AND WRITING

IJ clearly points out the precedence of speech over writing. According to him, speech had interceded writing in existence and, thus, the latter is considered secondary and ancillary to speech. He also makes a clear distinction between speech-sounds and letters of the alphabet. In his presentation of the sound system of Arabic, he discusses some sound variants, too, which have no written symbols at all[1].

THE SPEECH APPARATUS

Prior to and during the tenth century there exists an abundant literature on the anatomy and physiology of the human body in general and the organs of speech in particular[4]. The influence of such works on Arabic phonetics cannot be denied, as the latter draws a host of physiological and perceptual terms from the former. Here I would like to refer to the earliest ever recorded diagram of the vocal tract which appears in a twelfth century linguistic work by Sakkaki[[5].

SOUND AND MUSIC

In his definition of the vocal sounds, IJ appears to recognize the fact that the human vocal appratus can produce innumerable varying sounds. This idea can also be supported by the comparison he draws between the human speech organs and musical instruments such as the ***nay*** and the ***lute*** for their similarity in making varying sounds(or notes). He maintains that the vocal tract which can produce various speech sounds in a language as a result of being articulated at different places, may be likened to the ***nay***. When blown

unchecked, it produces a simple long sound just like the simple long vowel *a:* which is produced by an unchecked vocal tract. Alternating the fingers, while blowing the ***nay***, can produce various sounds in the same way as the organs of speech can make different sounds at different point of articulation. Similarly, IJ also maintains that the ***lute*** may be likened to the speech apparatus. When an unchecked string is plucked, it produces a simple sound. But the checked string of the ***lute*** can produce various sounds when plucked at different places with varying states of the strings. Here, the ***lute*** string is likened to the human vocal tract; and plucking at various places is compared to the articulation at different points. Although he admits that musicology is not relevant to his book[1], he maintains that the science of phonetics is relevant to music in so far as sound-making is concerned. It is interesting to note that Dr. William Holder, an early English phonetician and music theorist(d. 1698)makes similar comparisons with the lute, horn, cornet and trumpet[6].

CONSONANTS AND VOWELS

IJ recognises the two main classes of sounds for Arabic and other languages namely the C's and V's. This is based on his criterion of the free vs non-free air passage alone the vocal tract, as stated earlier. He discussed these classes in two different sections of the ***Introduction*** to ***SS***. Furthermore, in his analysis V's are unlike C's in terms of lengthening. V's can be freely and naturally prolonged[1].

SOUND PATTERS

Speech sounds are patterned in every language in accordance with its phonological and phonotactic rules. IJ makes numerous statements regarding the arrangement and combination of the Arabic C's and V's. His discussion concerning their distribution, co-occurrences, possible/impossible and acceptable/non-acceptable combinations, syntagmatic/paradigmatic relations are quite intelligent and interesting even for a modern phonologist. For instance, he remarks the Arabic has no word-initial vowels or clusters, unlike other languages, such as Persian[1],[2] and [7].

PHONETIC ORDER OF ALPHABET

Although may of IJ's statements concern Arabic, their implications are universally valid. He presents a list of the Arabic letters based on the ascending phonetic order. That is to say, the 29 letters are ordered according to their points of articulation starting from the larynx, through the various areas of articulation along the vocal tract, until finally ending with the labials. In his ordering, he differs slightly from his predecessors[7].

POINT OF ARTICULATION

IJ acknowledges 16 points and, again, he lists them in ascending phonetic order as follows[8]:

A. GUTTURALS
1. Laryngeals *?,a:,h*
2. Pharyngeals *ˁ,h*
3. Uvulars *R,X*
4. Post-Uvulars *q*

B. SOFT AND HARD PALATE
5. Velars *k*
6. Palatals *j,y,s*
7. Palato-Lateral *d*

C. ALVEOLARS
8. Lateral *l*
9. Nasal *n*
10. Trill *r*
11. Alveolars *t,d,t*

D. DENTALS
12. Dento-alveolars *s,z,s*
13. Inter-Dentals *,d,d*
14. Labio-Dental *f*
15. Labials *b,m,w*
16. Homorganic Nasals *,N*

He is also aware or the active and passive articulations as can be deduced from his description. This arrangement is both interesting and practical, though his inclusion of *a:* amongst the laryngeals, and of the homorganics is not accepted in modern phonetic practice.

MANNER OF ARTICULATION

Afterwards IJ classifies the Arabic phonemes in terms of the manners in which they are produced. The phonemes are grouped under on or more than one of the following classes:

1. Voiced or Voiceless
2. Plosive or Fricative
3. Emphatic or Non-emphatic
4. Raised or Lowered back of tongue
5. Lateral or not
6. Trilled or not

7. Strongly-released plosive or not
8. Nasal or not

DISTICTIVE FEATURES(DF's)

Underlying the above-mentioned classification there seems to be a kind of binary DF analysis. There are many statements which may lead to this deduction. To exemplify, we know that velarization or emphaticness is a DF in Arabic. IJ states:"without emphaticness *s* would become *s* and *d* would be *d*[1].

EXPERIMENTATION

The phonetic description of the speech sounds as presented by IJ is based on a thorough knowledge of the structure of the Arabic language, a very good observation of its sound mechanism, and a clear vision of the underlying theoretical approach to the phonetic phenomena. In addition, the phonetic descriptive techniques are enhanced by empirical methodology. In his anlalysis, IJ reports to experimentation whenever possible in order to support his data or arguments. This can be shown from the following statement concerning the nasals:"the voiced *m* and *n* are articulated in the mouth as well as in the nose and hence they are characterized by nasality. To demonstrate, if you tightly hold your nose while uttering them you will not be able to produce them"[1].

Another example demonstrating his inclination to experimental method can be inferred from the following quotation from *SS*:"If you intend to get the right sound of a consonant, you must pronounce it alone, unfollowed by a vowel since this can change its quality. But since Arabic does not allow initial clustering, you add the sequence *?i-* before the consonant. Thus you can say: ***?ik, ?iq, ?ij***, etc.". Although this shows a phonological influence on the analysis, yet it is clear here that IJ tries various empirical techniques to get the correct results.

CONCLUSIONS

Although the presentation above is both brief and incomplete, the intention here is to demonstrate IJ's contribution to general linguistics and phonetics. The ideas or statements extracted from his works are arranged herein in such a way to reflect genuinely the organisation of the data and information in his own works. This paper has only touched on some of the salient issues in the present discussion. There remain some other notions discussed by IJ such as pause, lengthening, syllable, speech defects, and suprasegmental features which deserve further consideration. Ibn Jinni's works and contribution to phonetics and linguistics deserve to be acknowledged in any scientific account of the history of linguistics and phonetics, which has not been done so far.

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[8] ***Due to unavailability of certain IPA symbols, the following are the different symbols used here for Arabic together with their phonetic values:-***

?=glottal stop
ᶜ=voiced pharyngeal fricative
h=voiceless pharyngeal fricative
q=voiced uvular stop ***G***
R=voiced uvular fricative
X=voiceless uvular fricative
Kh=X
j=voiced palatal stop
s=voiceless palatal fricative
y=voiced palatal semi-vowel
s=voiceless alveo-palatal fricative emphatic
d=voiced laterally-released stop emphatic
t=voiced alveolar stop emphatic
d=voiced interdental fricative
=voiceless interdental fricative
d=voiced interdental fricative emphatic
,***N***=voiced velar and uvular nasal, allophonic variations of ***n***
a:=low front long vowel
a=a:
u:=high back rounded long vowel
u=u:
i:=high front long vowel
i=i: