

The Influence of Manner of Articulation and General Features on Creating Secondary Characteristics of Sibilants

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Sibilance is one of the strong features which distinguish; “seen” “zai”, and “Saad”, 11th, 12th, 13th Arabic alphabets, known as sibilants. As these differ with regard to manner of articulation and some general features, this difference is noticed in their degree and type. This is the influence which prompted this research to investigate the influence of sibilance on the secondary features which distinguish each of them. I took into consideration scholars’ attitudes and their description of the place of articulation, general features, airstream flow, and what affects the articulatory system. The research adopted the descriptive analytical method in order to explain how sibilance in the “seen” figure (1) is shrill and heavy because of hissing and voicelessness, while that of “zai” figure (2) is audibly clearer for it is tense, due to ‘voicedness’. That of the “saad” figure (3) is tense and emphatic because of the closure resulting from the tip of the tongue moving up toward hard palate.

Key words: *Concave, Manner of Articulation, Shrill, Sibilance, Sibilants, Obstruction.*

Introduction

Al-khresheh, Khaerurrozikin, and Zaid (2020) pointed out that "Arabic is considered as one of the world’s most widely spoken languages. It is a macro-language that includes 30 modern varieties" (p, 872). In Arabic, sound feature is one of the basic aspects which distinguishes sounds and makes their articulation different. In addition, place of articulation also plays a role in determining distinctive features of the sound, but it can’t be the solely decisive factor in distinguishing sounds as the places of articulation are 17 in English, while 18 in Arabic. This implies that there are sounds that share the same place of articulation. Therefore, what

distinguishes them is the general and special features each of them has (Abd-El-Jawad, 1987).

Phoneticians agree that sound features are divided into two: General features with opposites voicedness vs. voicelessness, and tense vs lax. In-between medium and heighness vs lowness, closure vs openness, vowelness vs consonance. Other features have no opposites such as; hushing for “Sheen” (13th Arabic alphabet), and elongation for “Daad” (19th Arabic alphabet), hissing for “Saad” (11th, 13th, 14th) Arabic alphabets, diversion for “Lam” 17th Arabic alphabet, frequency for “Raa” 10th alphabet, and movement for the following phonemes: (baa, taa, jeem, dal, qaf) 2nd, 3rd, fifth, eighth, 20th Arabic alphabets respectively (Thelwall,1990; Kirchhoff & Vergyri, 2005).

If we consider the three sibilants, we find that they differ in the degree of hissing that led to this difference. The manner of articulation is caused by the place articulators take at the utterance of each. But the issue is not confined to this, there should be other general phonemic features to affect it.

In this research, the researcher attempts to reveal the effects of such features in creating the degree of sibilance that each of these phonemes has.

The nature of the research dictates that three requisites should exist: First, elaborating on the term sibilance linguistically and idiomatically; second discussing manner of articulation of these sibilants; and thirdly, shedding light on features of these phonemes; then finally, a conclusion that incorporates the findings.

Significance of the Study

The significance of this study stems from its attempt to disclose the general features of the three sibilants (zai, seen, and saad), in addition to the type of each.

Here, it depends on manner of articulation and general features: It also correlates the general features with the special ones and with the impact of creating the distinguished feature for each phoneme.

Questions of the Study

The study will endeavor to answer the following questions:

- 1- How does manner of articulation affect hissing of the three sibilants (zai, seen, and saad) with regard to type and intensity?

- 2- What is the effect of general features upon sibilants regarding determining type and intensity?

Literature Review

A book, written by Abdul Karim Mohammed Jabal, entitled “Sibilants in Quranic Readings”, discussed the concept of sibilance and mechanism of its articulation and revealed that the friction produced at the place of articulation contributed to hissing which is more in the phoneme “seen”, is caused by narrowness of the escape.

He explained the distinctive features which differentiate them. Had it not been for voicedness, “zai” would have been “seen”. Had it not been for closure, “seen” would have become “saad”. He afterwards elucidated the phonemic features that affect sibilant phonemes (Jabal, 2005), but he didn’t elaborate on the factors that led the difference in the degree of hissing for each sibilant. This is what this study will discuss and analyze.

In his book “The Term Phoneme in Arabic Studies”, Abdul Aziz Al-Seigh tackled the term sibilance linguistically and idiomatically. In that discussion, he presented what the ancients and moderns said on the issue revealing that sibilants were called so because of the strong friction that occurs at air release when articulated. But he declined from any reference to the secondary features of (seen, saad, and zai) (Abdul Aziz, 2007: 158-159).

Ghanem Al-Hamad in his book “Introduction to Phonology” he discussed features of phonemes including sibilance. He noted that Sebaweyh was the first to use such a term. He mentioned that sibilance occurs as a result of the strong friction at air release. Phonologists and scholars of intonation emphasized, but Al-Hamad never tackled the secondary features of sibilance (Al-Hamad, 2004: 122-123).

In his book entitled “Lessons in Arabic Phonology” discussed features of sibilants with regard to manner of articulation and the changes that occur in such a process. He mentioned that (seen) could be pronounced (ssad) if followed by a velar phoneme like the alphabets (kaf, kha, ghein, khaa or alveolar taa, e.g “asbagha” might be pronounced “assbagha”, “salakha” might be pronounced “ssalakha”, but he declined from discussing the discrepancies between (seen, saad, and zai) with regard to sibilance and its features (1965: 72-74).

Methodology – Study Methodology

The researcher aimed at collecting what the ancient and modern scholars said about the issue, using phonetics in his discussion and analysis in order to come up to what distinguishes each sibilant from others through his adoption of the descriptive analytical method.

Thus, answering the questions and analyzing them provide us with what is needed to distinguish the minute differences between these phonemes and what ensues from that with regard to strength and weakness. We can also figure out which factors lead to easiness or difficulty of utterance depending on manner of articulation and phonemic general features.

This leads to:

First Requisite: Linguistic and idiomatic meanings of the term sibilance.

It was mentioned in the book of “Al-Ein” that “Mukaa”, which is a high sound produced by various ways: hand clapping, or whistling through the mouth. Al-Khalil (170 AH) stated that “Mukaa” is hissing as stated in the Quran “their prayers at the Kaaba was no more than “Mukaa” and “tasdiyeh”, which is clapping by hand. Before Islam, people used to move around “Kaaba” (holiest shrine for Moslems in Mecca) naked whistling with their mouths and clapping with their hands (5), 415. It is the same meaning brought up by Ibn Manthoor (711 AH). But Ibn Manthour explained the way of whistling through the mouth. Some said that the person inserts fingers in his mouth and starts whistling. He added that sound whistling is similar to the sound of animals when watered (15), 289. Whoever examines both means finds out that:

- 1- Whistling is producing a high sound irrespective of the way it is produced: it could be by inserting fingers in the mouth and puffing air.
- 2- Whistling can't be produced without forcing air out through inserting fingers in the mouth by which a friction is produced resulting in whistling. It can also be produced by hand clapping by which air is compressed by the two palms of the hands producing whistles.

Idiomatically, from the viewpoint of phoneticians, the ancients didn't provide a specific definition for the nature of whistling.

Sebaweyh said “as for saad, seen and zai, they can't be diphthongized as they are sibilants that are more pleasant to hear” (4), 464. Al-Mubbarred (285 AH) added these phonemes are the puffing ones (Al-Muqtadab, 2008) (1), 174. Makki mentioned that sibilants were given this name because in their articulation, the released sound provides them with certain tensity (Makki, 1996). (Ibn Tahan, 2010: 37). As for Ibn Yaeesh, he mentioned that hissing is produced after voice being compressed. He says that “sibilants: “saad, zai, and seen” constitute a good example of sound hissing when air is released from the space between tip of the tongue and alveolar where it was compressed 524. Al-Radi Alistrabathi said that “Sibilants are those phonemes with a hissing sound.” (Istrabathi,1957).

Modernists didn't add up any new to what the ancients said. Like the ancients, they emphasized that sibilance results from narrowness occurring in articulation (Anees, 2002; Cantino, 1969). Mohammed Hasan Jabal mentioned that sibilance is whistling, it is the hissing heard when air is forcefully released from a narrow escape. This is what distinguishes the sibilants (saad, zai, and seen) (Jabal, 2006: 66). Malbridge said "it is the clarity with which the sound is heard as a result of the strong friction at its release, an actual feature of three consonants "seen, zai, saad.

From what scholars said, we find that they all agree on the meaning of sibilance which is the sound heard when released from a narrow escape that produces audible friction. They also agree that the sounds with which this friction occurs are, "saad, zai, seen" only.

But what Ibrahim Anees mentioned in discussing sibilants raises questioning. He proclaimed that modern phoneticians unanimously agree that all phonemes in whose articulation a low or high hissing sound is heard are: "the, tha, zein, sheen, saad, thaa, and fa" (third, 5th, 7th, 8th, 9th, 10th, and 13th Arabic alphabets) (Anees, 2002).

Whoever contemplates over such an opinion, that all these are sibilants, finds out that it is an exaggeration. What is agreed upon is that (seen, sad, and zai) differ in their articulation because friction in each of them is different in place and Manner. Sibilance obligates teeth to play a role in narrowing air escape passage in order to produce such a distinguished hissing without which the friction will be lighter. Since teeth play such a role in articulating (seen, saad, and zai), they cause that friction which results in sibilance (Steitieh, 2003).

To differentiate between the sibilants and to determine the degree of sibilance and the particular feature of each phoneme, it is important to take two factors into consideration: manner of articulation i.e. what happens to articulators when each phoneme is produced, in addition to the position of such articulators and the way air is released. More than that general features should also be considered for the role they play in tensity and laxity of the sound produced. The following elaborates on that:

Second Requisite

Ancient and modern scholars agree that the place of articulation of the three sibilants is the same, but they differ from each other in manner of articulation which makes the resonance of each different. The following illustrates that:

Place of Articulation Of "Seen"

Ibrahim Anees pointed out that in the articulation of “seen” air rushes out passing through larynx, without making vocal cords to vibrate, passing through pharynx and the mouth till it escapes. This happens, as mentioned before, when the tip of the tongue touches the upper or lower alveola that a narrow passage is formed between the tongue and alveola when the rushes causing the present sibilance (Anees, 2002).

Kamal Bishir pointed out that in the articulation of “seen”, the front part of the tongue touches the alveola leaving a narrow escape for air causing friction. The hard palate rises up closing the nasal cavity; vocal cords are made to vibrate. In its articulation (Bishir 2003: 201). Whoever investigates the articulation of “seen” notices that the tip of the tongue never touches alveola. Had the touch occurred, no sound or sibilance would have been heard. Mohammed Husein Jabal in describing (seen, sad, and zein” says “in the articulation of any of them, the front part of the tongues moves closer to the two sides of the alveola thus air has no passage to escape except through a narrow release from the lateral sides of the tongue and the alveola causing sibilance” (Jabal, 2006: 125). From the aforementioned, it is made clear that the produced sibilance is the outcome of several factors that contribute to the creation of the resonance as outlined in the following:

1- Number of obstructions before sibilance escapes:

No obstruction occurs prior to the one at the sibilant’s escape. This keeps air more forceful and retains strength due to the absence of friction in the way to the point of articulation, the sibilant’s escape.

2- Air tensivity:

The absence of any obstruction in the articulation of (seen) prior to the escape provides air with tensivity that increases pressure on the point of articulation.

The distance that the stream of air covers, from the lungs to the point of release, is a great one that enables it to create a certain force to produce a distinguished tense sibilance. Thus, air intensity is counter proportional to the number of obstructions. The more obstructions we have, the less tense air will be, vice versa.

3- The degree of narrowness in sibilance escape:

Narrowness that occurs at articulating the phoneme plays an important role in controlling and producing sibilance. The narrower the passage was, the tenser the sibilance would be. Ahmad Omar said “the narrower air passage was, the more control we could have over vibrations. The produced sound would be tenser. The distinguished sound of the (seen), is the

highest in vibrations which might range from 8000 – 9000 cycle per second (Omar, 1994: 43).

The intense narrowness at the articulation of (seen) is caused by two factors: closeness of the tongue to the teeth and alveolar, in addition to closeness of upper and lower palates which makes the hissing tenses: It is noted that at the articulation of (seen), the surface of the tongue is not concave neither the front and the tip never rises up. (Jabal, 2006: 125). Such a thing helps air to move straight to the point of obstruction where it is released under high pressure and particles of air are disturbed causing that audible sibilance similar to that heard when a solid object hits upper alveolar.

In the study Steitieh conducted on students of the college of dentistry at the University of Michigan, he found that the teeth are important in creating sibilance more than articulating other phonemes like “tha” 4th Arabic alphabet, whose correct articulation depends on teeth. He concluded that the diversion that occurs in articulating the (seen) without teeth rated (83%), but in the articulation of “tha” was (44%) which proves that sibilance never occurs without teeth (Steitieh, 2003: 161).

“Zai” Escape

Ibrahim Anees pointed out that in the articulation of (zai) air is pushed out the lung passing through the larynx making vocal cords to vibrate. It continues through pharynx and the mouth to the point of escape where the front of the tongue touches upper and lower palates (Anees, 2002).

Bassam Baraka mentioned that in the pronunciation of (seen, and zai) the tip of the tongue moves closer to the alveolar gum to the point of touching where a narrow escape for the exhaled air is left. The tongue will be concave in length, specifically at the place of articulation where the escape becomes circular and smaller; the cords are not made to vibrate, in the articulation of seen but does in the articulation of “zai” (Barakah, 1988: 123).

It is apparent, from what preceded, that the manner of articulation of (zai and seen) is similar except for vibration of the vocal cords: the former is voiceless, but the latter is voiced. If we examine the factors causing sibilance, we find the following:

- 1- Number of articulatory obstructions at the sibilance escape: The first obstruction that occurs in the articulation of (zai) is the one that results from closeness of the two vocal cords to create voicedness. This obstruction reduces air density that rushes out to the point of escape of sibilance at the second point of obstruction at the front of the mouth. This means that there is one single obstruction producing the one before sibilance escape.

What counts is the first one because it identifies air intensity and speed before reaching the area of shrill hissing according to which sibilance is classified as tense or lax.

2- Types of obstruction:

The type of obstruction in the articulation of (zai) is that of narrowness which occurs before air reaches front of the mouth; i.e. point of escape. One of the features of this obstruction is that it reduces air intensity it causes in the narrowness area. This contrasts with the concave obstruction or that of pitch occurring in the articulation of (saad). Thus, air in fricative obstruction will be less in intensity than in the other type because the other obstruction doesn't create friction, but hinders air from creating a concave gap which should be filled up by air in order to move forward.

3- Air intensity:

In the articulation of (zai) air won't be as tense as it is in (seen), due to the voicedness which decreases the intensity that has been caused by vibration of the vocal cords. Thus, sibilance in (zai) is less intense than that of (seen). The tenses air is and the narrower the escape is, the tenses sibilance will be.

4- Degree of narrowness in sibilance escape:

The degree of narrowness for both (zai and seen) is the same. Regarding the phoneme (zai), it is voiced and tense like that of (seen); the only difference between them is (zai) is voiced will (seen) is voiceless (Anees, 2002). In addition, narrowness in the (zai) is tenses, thus produces sibilance different from that of (saad), but limited, if compared to that of the "seen", because obstruction of the vocal cords decreases air ejection toward the escape.

Saad Escape

Ibrahim Anees said "In the articulation of (saad), the tongue takes a counter position to that of (seen), a concave position touching the upper palate with the back part of the tongue, like all touching sounds." (Anees, 2002).

Mohammed Jabal said "In the articulation of the "saad" air is released with no hissing, tip and blade of the tongue rise up, its middle becomes of a concave shape that intensifies and amplifies sibilance making it a voiceless lax and high consonant." (Jabal, 2006), (125).

From the two preceding statements one understands that (saad) is a voiceless phoneme where air ejected from the lungs maintains its power with no obstruction in the vocal cords and keeps moving till it reaches the point of narrowness, as the tip of the tongue rises up toward the upper palate. The air is compressed and released in the concave area where it is hampered from filling the void till it reaches the second point of narrowness, the area where the tip of the tongue draws closer to the front alveola and the compressed air strikes the teeth when released from a narrow point. Thus, sibilance of the (saad) is of a distinguished quality resulting from the following stages that air passes through:

1- Number of obstructions prior to sibilance escape:

In articulating (saad), air passes through the following obstructions:

A- First obstruction:

It is that one which results from the rise of the tip of the tongue toward the upper palate. It is the first place where air speed is hampered, due to the friction that occurs and produces a non-sibilance hissing, for sibilance requires a solid object.

B- Second obstruction:

It is the concavity of mid-tongue that results from the rise of its back and tip. In this area, air belates in filling up the concavity and that doesn't lead to friction similar to that of the first stage, but air is forced to stay on the tongue till it fills the void between the concave tongue and upper palate. This concavity strengthens sibilance which makes "saad" different from that of "zai" and "seen".

A third obstruction also occurs in the area of sibilance escape where the narrowness is greater than the first because it occurs between a soft part, front of the tongue, and a hard one, the teeth or alveola, when air strikes them, producing sibilance.

This narrowness is not as important as the first because sibilance tensivity relies on the control of air speed in the first narrowness.

The second obstruction is important as it receives the air released from the first obstruction and compresses it producing an audible sibilance.

2- Types of obstruction:

"Saad" is the sibilance in which most articulatory obstructions occur. Such a thing endows it with a distinguished feature and a special degree of sibilance that singles it out from other sibilants. It also differs from others in the various obstructions it has. The first one is seen in the narrowness of the extreme part of the tongue with the upper palate and that creates friction which reduces air speed allowing it to proceed to the second obstruction. In the second type, the middle of the tongue takes the form of a concave plate and this is why phoneticians called it the pitched phoneme. The pitch has two advantages:

First, it hampers air movement by absorbing the air released from the first obstruction. Once the plate is filled up with air, it proceeds to the narrowness escape that produces sibilance. Second, it amplifies the sibilance resulting from air passage through second area of narrowness whose concavity creates a distinguished harsh sibilance.

3- Air intensity:

Air intensity of any phoneme depends on the number of obstructions through which air passes. In the “saad”, for example, there are two types of obstructions that occur prior to the sibilance one – each of them reduces air intensity in a different way; air intensity in the “saad” is less than that of the “seen” and “zai”.

4- Degree of narrowness at sibilance escape:

This is the second stage of narrowness which in “saad” is less than that of “seen” and “zai”. The reason behind the back of the mouth taking that shape is because the middle of the tongue becomes concave in order to reduce intensity of narrowness. Had narrowness been acute, sibilance would have been shrill and emphatic, features which would never happen at the same time.

Thus, in the articulation of “saad” three obstructions take place: two cases of narrowness, and mid-tongue concavity. These elements reduce the intensity of air rushing out from lungs. At reaching sibilance escape, air becomes weaker than before so sibilance won’t be sharp, but mid-tongue concavity makes sibilance more emphatic.

If we compare the type and degree of sibilance between (“saad”, “seen”, and “zai”) we find the following:

- 1- In the articulation of “saad”, the back of the tongue rises up creating a concavity in the middle which amplifies the sound produced by that hissing resulting from the friction at its escape echoing that sibilance. But in the case of “seen” and “zai”, as the tongue doesn’t have that concavity, no emphatic sibilance coming out of narrowness is heard.
- 2- There are two cases of narrowness in the “saad”: the first occurs when the back of the tongue rises toward the hard palate and the second happens when the back of the tongue draws closer to the front alveola. As for the “seen” it has only one case of narrowness when the tip of the tongue draws closer to the gum and alveola. In the “zai”, there are two narrow cases, that of vocal cords, and narrowness at sibilance escape at the front of the mouth.
- 3- Degree of narrowness of sibilance escape of “saad” is less than that of “seen”, and “zai” and that provides “seen” with clearer friction less than other phonemes. Makki said: “sibilance in “seen” is clearer than that of “saad” for the pitch that “saad” has. This makes sibilance in “seen” clearer in contrast with that of “saad” whose pitch differentiates it from “seen”. (Makki, 1996: 211-212).

Friction in “saad” is less than that of “seen” and “zai”, but the concavity that occurs in “saad” compensates for the loss of air pressure at the area of narrowness by the emphatic sibilance it produces, thus, sibilance in “saad” is harsh, tense, and emphatic, but in “seen” it is tense and

that intensity resulted from the narrowness and released air. “Zai” sibilance is less intense than that of “seen”. It is a sibilance accompanied with vibrations of vocal cords that reduce sibilance intensity because it disturbs air particles puffed from the mouth. Here, sibilance is less tense, but audibly clearer when that of “seen” and “saad” for voicedness increase audibility. (Steitieh, 2003) 173. (See Table 1)

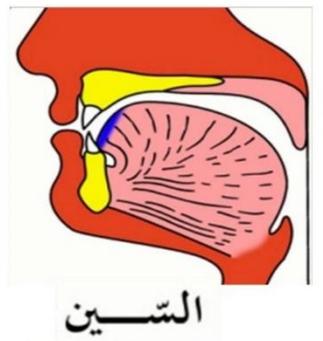
Table 1: Types of Sibilance

| | Number of obstructions prior to escape and their types | Air intensity | Sibilance type |
|------|---|------------------|-------------------|
| Seen | None | The most intense | More intense |
| Zai | Narrowness of cords | Less tense | Better audibility |
| Saad | Narrowness of the point of the tongue and upper palate mid-tongue concavity | The least tense | Emphatic |

The preceding table shows that sibilance intensity goes in reverse proportion with obstructions; the less obstructions are, the more tense sibilance will be. The more obstructions we have, the less tense sibilance will be. Accordingly, sibilance of the three sibilants pertaining to intensity can be classified as follows: at the top is “seen”, then “zai” and the least tense is “saad” whose sibilance is emphatic, unlike that of “seen” and “zai”. Such an arrangement is based on several factors: number of obstructions prior to sibilance escape, their types, air intensity, and degree of narrowness.

The following are explanatory images of the influence of articulatory obstructions on features of the three sibilants: “seen”, “saad”, and “zai”.

First: “seen” phoneme
Figure (1)



(Seen)

One obstruction: narrowness obstruction at escape area where front of the tongue draws closer to the front teeth

Function: air leak through escape.

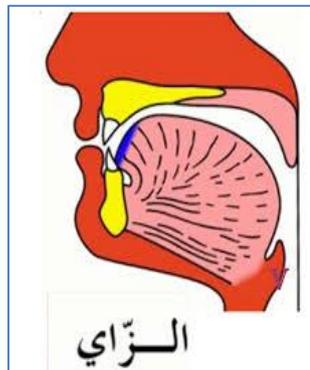
Sibilance features:

- 1- More tense due to absence of obstructions prior to escape and narrowness.
- 2- Heavy to articulate (because of the great effort exerted by articulators in the process of articulation).

Second: “zai” phoneme

Second: “Zai” phoneme

Figure (2)



(Zai)

First obstruction: obstruction due to narrowness of vocal cords.

Function: create voicedness.

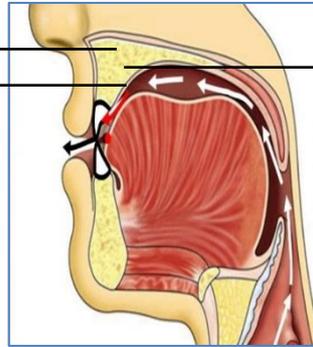
Second obstruction: narrowness obstruction at escape area.

Function: air release through narrow escape to create sibilance.

Sibilance features:

- 1- Better audibility because of vocal cords obstructions. (voicedness).
- 2- Heavy because of consonance.

Third: “Saad” phoneme
Figure (3)



| | | |
|---|---|---|
| Saad phoneme | → | <p>First obstruction: narrowness obstruction resulting from tip of the tongue rising up to the upper palate.</p> <p>Function: hindering air passage reducing its intensity.</p> |
| | → | <p>Second obstruction: A concave obstruction resulting from the rise of mid-tongue up forming a plate like shape.</p> <p>Function: hindering air passage by forcing it to fill the concavity before proceeding.</p> |
| Sibilance secondary features: Emphatic because of mid-tongue concavity and rise of tip tongue. Heavy because of consonance. | | <p>Third obstruction: A narrowness one resulting from the tip of tongue moving closer to the lower teeth.</p> <p>Function: Air filtration.</p> |

Third Requisite: General features of sibilants

Every phoneme in Arabic shares general features with other phonemes, but is singled out for one feature of its own. Phoneticians classified intensity of those phonemes into tense and lax. Voicedness is tense, but voicelessness is lax; closure is tense, but openness is lax; articulators' rise is tense, but lowness is lax. Tense features, undoubtedly, influence particular features of the phoneme. In elaborating on tensity and laxity of sibilants, Makki said “they

are strong for the tensity they own, sibilance is an aspect of phoneme tensity. “Saad” the strongest in closure and articulators’ rise, “zai” is strong for being voiced; but “seen” is the weakest for being voiceless.” (Makki, 1996) 124. Thus, Makki noted how general features influence the degree of sibilance in the three sibilants. Sibilance is a strong feature, but varies from one phoneme to another in correlation with the general features each phoneme has. Makki didn’t mention other strong features that influence phoneme strength or weakness such as: consonance, tensity, and laxity. He confined his elaboration to: voicedness, voicelessness, closure, openness, rising, and lowering of articulators. The following is an illustration of that:

1- Voicedness:

It is known, in phonetics, that voicedness is a feature of the phoneme in which vocal cords vibrate as a result of being narrow the moment air passes through them when expelled from the lungs through the wind pipe. One of the results of this vibration is that the articulatory system strongly vibrates to the extent that speaker and hearer feel it. Because of that, phoneticians consider voicedness a strong feature and voicelessness weak (Makki, 1996) 116. Al-Mirishi explained the point of strength and weakness in the voiced and voiceless pending on the amount of air. The former is accompanied by a release of a small amount, as seen in (zai) where the two vocal cords obstruct it, while in the latter air release is much more because there is no obstruction by the cords as seen in the (seen and saad). (Makki, 1996) 116. About the voicelessness he says “too much air passes producing a strong voice which means that the strong voice is in counter-proportion with the released amount of air, i.e when it is much, the voice is weak.

In examining the three sibilants, we find that (seen and saad) are voiceless due to too much amount of air accompanying their articulation, as the cords don’t vibrate, thus, air becomes strong enough to produce sibilance. But the (zai) is a voiced sound due to the little amount of air released as the cords don’t vibrate though the sibilance of (seen) is more intense than others (Bishir, 200), (301).

2- Itbaq (Closure)

3- In this case the tongue takes a concave position with the upper palate moving back when articulating the phoneme (Anees, 2002: 62). Al-Mirishi said that in such a case the back and middle of the tongue move up toward the hard palate where air is compressed. The (Itbaq) phonemes are (Taa, thaa, saad, and Daad) 16th, 17th, 13th, 14th Arabic alphabets respectively (Al-Mirishi, 2008), (165). The tongue position in this case makes the sound emphatic. elaborated on this saying that phoneticians described it in detail as follows:

The tongue with its concave form touches the upper palate so the front part of the tongue becomes the only escape for the articulated phoneme. The back point is the source of emphatic pronunciation. For example, in the pronunciation of (saad), the front part of the tongue moves to the position of the (seen), but the back part rises and the tongue becomes concave producing the (saad) (115).

The closure that occurs in the tongue never happens in “seen” and “zai” as the tongue stays flat. Thus, “saad” acquires closure and emphatic pronunciation. “saad” and “seen” only differ in closure (Sebaweih, 180 A.H). Had it not been for this closure, “Taa” would have been pronounced “dal”; “saad”, “seen”, and “thaa” “thal” (Sebaweih, 2004) 994. As for “zai”, it differs from the “saad” being voiced without closure. Thus “saad” sibilance is emphatic and harsh, but that of “seen” and “zai” is soft because air passage is open to pass freely to sibilance escape.

4- Tongue rising

Marashi mentioned that this is a feature of the strong sound. The term implies that in the case of articulating the phoneme, the tongue moves up to hard palate, the phoneme, in whose pronunciation such a thing happens, are combined in the following words: “Khas”, “Daght”, and “Oath” (Mirishi, 2008). Opposite of that is “lowering” in which the tongue moves down to the bottom of the mouth in articulating any of the above mentioned phonemes (Seigh, 2007), 143. There is a strong correlation between highness and lowering; the tongue in both cases rises up. The difference between them is that in the case of highness that back part of the tongue rises, while in closure both the back and the middle of the tongue rise forming the closure that creates emphatic pronunciation. “Saad” is the only phoneme among sibilants whose sibilance is emphatic. As for “seen” and “zai”, they are phonemes of lowness, a feature which allows air to pass freely and quickly and that makes their sibilance intenser than “saad”.

5- Consonance

This feature provides the phoneme with certain tensity that makes it heavy. Ibn Dureid said that he heard Ashnandani who heard Al-Akhfesh declaring that some characters are called “Muthlaqa” (produced by tip of the tongue), because the tip of the tongue plays a role in their pronunciation. They are the lightest and the best to intermix with other phonemes. The others are called consonants, which are difficult for the tongue to articulate. (Ibn Dureid, 1987, 45). No word can be built with more than three consonants excluding the phonemes produced by tip of the tongue. Phoneticians combined them in the following words “Far min Lb” “fa”, “raa”, “meem”, “noon”, “lam” and “ba”, Arabic phonemes. (Makki, 1996). Thus, sibilants are consonantal phonemes which are not pronounced easily like phonemes articulated by tip of the tongue. (See Table 2)

Table 2: The influence of general features

| | Voicedness | Closure | Highness | Consonance |
|--------|--------------|----------|----------|------------|
| “Seen” | --- | --- | --- | Heavy |
| “Zai” | More audible | ---- | --- | Heavy |
| “Saad” | --- | emphatic | emphatic | Heavy |

The table shows that “seen” has one strong feature – consonance which provided sibilance with heaviness, but openness gave it tensity, due to air speed. Voicedness gave “zai” a clearer audible sibilance, but consonance provided it with heaviness, “Saad” has three strong features: closure and highness provided it with emphatic utterance, but consonance gave it heaviness.

Conclusion

The research tackled sibilance in “saad”, “zai”, and “seen”. It also attempted to elucidate the additional features sibilance got and how it was influenced through two factors:

First, manner of articulation of sibilants and what changes occur through articulating them.
Second, their general features

It was made clear that sibilance in the previous phonemes differ from one another. In the “seen” sibilance is tense, due to the forceful air passing towards its escape without any obstruction, and heavy because of consonance. In the “zai” sibilance is less tense than “seen”, but more audible because of voicedness that results from narrowness of the vocal cords, and heavy because of consonance. In the “saad”, sibilance is less tense than that of “seen” and “zai”, due to the two obstructions these face prior to that one at the escape. One of the two narrow places is that produced when the back of the tongue rises toward the upper palate; the other narrows air passage through friction and decreases air speed. Due to this concavity, sibilance becomes more emphatic and heavy because of consonance.



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