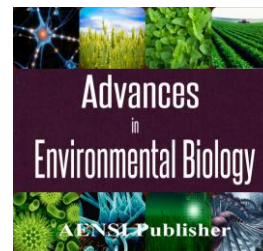




AENSI Journals

## Advances in Environmental Biology

ISSN-1995-0756 EISSN-1998-1066

Journal home page: <http://www.aensiweb.com/AEB/>

## Hiatus and Consonantal Epenthesis in Persian

Reza Khatami, Roghiyeh Sohrabi, Faezeh Ebadi Ghahremani

Department of Persian Literature, Faculty of Humanities, Shahr Rey Branch, Islamic Azad University, Tehran, Iran.

### ARTICLE INFO

#### Article history:

Received 15 June 2014

Received in revised form

8 July 2014

Accepted 4 September 2014

Available online 20 September 2014

#### Keywords:

*Hiatus: placing two vowels together, so that the first is at the end of the previous morpheme, and the second is at the beginning of the next one, which called Hiatus. Acoustic Phonetics: phonetics is a subset that explains the physical properties of speech sounds.*

### ABSTRACT

This thesis looks into the concept of hiatus and consonantal epenthesis in Persian. To date, many linguists including Samare (1378), Haghshenas (1379), Sadeghi (1380), Parmoon (1380), and Kord Zaferanlou Kambozia (1381) have conducted research on this issue. All but Parmoon have examined the formal style. These studies have yielded different results. This thesis looks at hiatus and consonantal epenthesis from an acoustic perspective. We have investigated the acoustic properties of these consonants. This study aims to answer three questions: 1) is a consonant inserted between two vowels in hiatus in formal and colloquial speech? 2) If yes, what are the acoustic qualities of the inserted consonant in the hiatus environment? 3) If no, how should syllabic patterns in Persian be formed? Hypotheses concerning those questions are as follows: 1) in formal and colloquial speech in Persian a consonant is inserted between two vowels. 2) In hiatus in Persian, the inserted consonant shows different acoustic qualities. 3) In general, with the insertion of a consonant and avoiding hiatus, occurrence of the (VCCC) pattern syllable in the mentioned environment is certain. This research employs Pratt software program. In each style, 36 words from 6 environments were chosen. These words were read out four times by a female speaker and then analyzed. According to Sadeghi (1380) the four sounds [w, ʔ, h, j] were analyzed as consonantal epenthesis. The following conclusions were drawn: Consonant [j]: In formal style in environments [o-e], [i-e], [i-o], [i-a] context [ j ] is inserted. Consonant [w]: In formal style, this sound was not found. In colloquial style, [ w ] was observed in the context of [ u ] and [ o ] except for [ o – o ]. Epenthesis [h]: This sound was not found in formal style. In colloquial style it was found only in [a-a] context as voiced and in [e-e] context as voiceless. Epenthesis [ʔ]: This sound was observed in all expected environments.

© 2014 AENSI Publisher All rights reserved.

**To Cite This Article:** Reza Khatami, Roghiyeh Sohrabi, Faezeh Ebadi Ghahremani, Hiatus and consonantal epenthesis in Persian. *Adv. Environ. Biol.*, 8(11), 849-857, 2014

## INTRODUCTION

Although many studies have been done on Hiatus and consonantal epenthesis up to now, especially on glottal consonants, but there is no study on acoustic properties of consonantal epenthesis mediators. On the other hand, all the studies examined only a formal style. Here, we examine both formal and conversational styles of acoustic perspective, may be confidentially commented through the presence or absence of consonants as in the case of acoustic properties.

#### Research purposes:

To reach a unit conclusion regarding the presence or absence of a mediator consonants and especially the glottal occlusion mediator consonant and following that, reaching acoustic properties of these consonants, and study of the syllabic construction in Persian, are of the considered aims of this research.

#### Research questions:

1. Do Hiatus, insert in both formal and informal speech between two vowels?
2. If the answer to question 1 is yes, what are the acoustic properties of listed consonant in Hiatus?
3. If the answer to the question 1 is no, which account should be considered for syllabic structures in Persian?

#### Research hypothesis:

1. Informal and formal speech in Persian, in Hiatus, is inserted as consonants.
2. In Hiatus situation in Persian, the inserted consonant shows different acoustic properties.

**Corresponding Author:** Reza Khatami, Department of Persian Literature, Faculty of Humanities, Shahr Rey Branch, Islamic Azad University, Tehran, Iran.  
E-mail: [reza.khatami92@gmail.com](mailto:reza.khatami92@gmail.com)

3. In general, the insertion of consonants and preventing the Hiatus, the occurrence of the triple plan of Persian syllables in these conditions is guaranteed.

#### *Methodology:*

The history is collected in library method, and data is gathered with field method. In this study, both formal and conversational speech sample are considered and the recorded statements of an educated Persian individual are used. So that he says the words four times and then his words are recorded. Finally, the data is examined through the Parat software.

Due to the nature of the study, two groups of variables are considered:

1. *Speech style:* Both formal and informal styles are examined.
2. *Phonetic context:* The six available contexts in Persian are considered to select the words.

#### *History:*

##### ❖ *Haghshenas [2]:*

Haghshenas [2] says in his article entitled "Hamzain Persian language and writing":

According to the author, the fact is that Hamza in the Persian phonetic does not refer to aphonetic sound, but implies as a term covering a range of different voice phenomena.

To investigate Hamza in the Persian phonetic system according to Haghshenas [2] the results obtained:

1- According to Aroozian, the deletion of the original Hamza if it is written by "A" is not permitted in the combination. For example, the hemistich of "The sincerity should learned from Ali", removing the Hamza of Ali is not permitted.

2- Then, in Arabic origin words, Hamza, has an interactive power and phonetic value in all three positions.

3- In the words of non-Arabic origin, Hamzainly appears in the following positions:

(a) Hamza at the beginning of the word, "Andish", "Ab". In this position, so that by entering the word to build a bigger structure, for Hamza, a fit replacement is found, the Hamza is excluded under certain conditions, but its position will not remain empty, but filled with an alternative consonants like: bad + andish ----- badandish [bæ.dæn.di]

(b) Hamza in the middle place in common Persian words such as: theater, video, neon.

(c) Hamza appearing on the boundary between the words ends in a vowel word, and a declinable element begins with the Hamza in the documental or solid quote. These declinable elements are of three types:

- The declinable extensions like unity or indefinite extensions "of": letter + of ----- letter of
- Following tag like singular second person your + letter ----- your letter
- Verb terminal such as terminal of singular second person "say + ing ----- saying"

In addition to what has been said here, Hamza is also used in the middle position of some native Persian words such as "Paez", "Paen". But these words first are rare, and second it is possible they historically are not simple and easy, but they are the deposits of traditional procedures that have been sterilized and removed.

Haghshenas [2] according to the above examples explains the following results:

1. Hamza at the beginning of the words of Arabic origin, just because first they cannot be removed under any circumstances, and secondly in the original structure, creating a conflict with other consonants, it is inevitably among Persian phonemes, but the phoneme that are limited to Arabic phonologic.

2. The beginning Hamza in non-Arabic words origin, because it will be removed under a certain circumstances and subsequently replaced with any other consonant (or a final consonant of the preceding word or any mediator consonant), the inadequacies in the handling of any word in other word does not create any conflict and thus cannot be considered as Persian phonemes. But despite the recent reality, it cannot be denied that the beginning Hamza of non-Arabic words as well, because has a position in phonological position in phonetic structure of the words and play a structural role in the position, but it does not lack a fundamental value and considers it as a redundant or superfluous element, but it must be considered as a structural (not interactive) element. It means that the kind of element that is referred to in the Firth, JR phonology as prosodic element.

The same conclusion is true about the middle Hamza in Persian loanwords and Hamza between the words ending vowels and declinable elements subjected to Hamza. Consequently, Hamza in the Persian phonetic system plays two different structural roles:

- Contrastive or phonemic role along the center line of succession, and only in Arabic loanwords.
- Divergence or prosodic role along the juxtaposition and only in non-Arabic words origin.

##### ❖ *Sadeghi [10]:*

Since in the Persian language, usually no syllable starts with a vowel, the mediator consonants seems out of question, except in the following cases [10]:

1. The existence of the following tags phonemes like: i- indefinite and ast and other following tags of theverb (to be) as well as morphological and derivational suffix such as plural -an and i- of ratio and -e added and so on

that because of its lack of independency and being dependent to their preceding words, always starting with vowel.

2. Excluding the beginning Hamza of the second part in some combinations, if starts with a vowel that this exclusion causes the confrontation of two vowels.

3. To remove a consonant from a morpheme based on transformation of the language, thus Hiatus is creating. In all these cases, the language using a mediator consonant, Hiatus is removed. In general, the nature of the mediator consonant is dependent to one the following three conditions:

- A) Terms of phonetic vowels together
- B) Morphological conditions, involving phonetic morphemes
- C) Morphological conditions of involved morphemes.

Different textures and employing the different mediator consonants based on review of Sadeghi [10] that we can see in the following:

1. If the first vowel is /i/, in most cases, the mediator consonant is -j-.

2. If the first vowel is /e/, the consonants that could be used are: -w-, -j-, -ʔ-, -h- :

There are few exceptions in case of e- i. such as: khanevedegi, khanegi, hamegi, hamishegi and so on, which are provided in morphology and pronunciation of the mediator consonants in these textures is minor.

The usage of -ʔ- in e-o textures apparently confined to the European loanwords.

Such as -ʔ-orivide-ʔ-o / te

3. The contexts that their first vowel is /æ/, are rare in today Persian and except morpheme “not”, there is no other word in Persian that ends to vowel /æ/. When the word is in conjunction with /o/, is pronounced as næ-w-ou that the mediator consonant of -w- is used in combination with them.

4. If the first vowel is /u/, the mediator consonants are -j-, -ʔ-, -w-.

5. If the first vowel is /o/, the mediator consonants are -w-, -ʔ- or -j-.

6. If the first vowel is /a/, the mediator consonants could be -w-, -j-, -ʔ- or -h-.

7. The contexts that their first vowel is /ow/, i.e. when the vowel is placed before another vowel, often is divided into two parts, and its second part, is used as a mediator consonant between the first part and the beginning consonant of the next syllable. In most of these textures instead -w-, the consonant -v- can also be used. In some cases, the second component is deleted and is replaced by -j-.

1. The cases that their beginning Hamza is remained are as follows:

(a) In all the cases where the morphemes of the language are placed next to each other to build the larger units than word as a syntax combination, group, phrase, terms, Hamza is remained: baʔu

(b) In cases where two morphemes build a compound word, Hamza is remained: bi – ʔædæb.

(c) After the verb prefixes /be/ and /næ/, and before the verbs that starting with vowel /i/, Hamza remains: næ - ʔistad.

2. The items that Hamza is removed:

Hamza removal takes place only when the verb prefix /be/ and signs of rejection /næ-/are placed before the verbs that begin with the vowels /o/, /æ/, /a/ and /ow/. The consonant which in this case is used as a mediator consonant is /i/ that has morphological- phonetic aspect: næ-j-amæd.

3. After /-mi/, both removal and remaining of Hamza is possible. But in some cases the removal of Hamza and replacing it by -j- instead is more. The cases that Hamza is remained are traditional: mi-ʔamæd  
mi-j-amæd

And before the verbs beginning with the vowel /i/, Hamza always remains: mi-ʔ-istad

#### ❖ *Parmoon* [8]:

Parmoon [8], originally quoted Sadeghi [10], the mediator consonants are introduced by five voices [ʔ,h,v,w,j], then I explain my opinions about them as the mediator consonants:

- [ʔ, h, w]: are never seen.
- [v]: is rare.

Parmoon [8] suggests that the phonic [fi] (voiced allophones h), is frequently seen in Persian as an intermediary consonant. From Parmoon's viewpoint [h, ʔ], basically there are not in spoken Persian measure as intermediaries. [ʔ] occurs only in some artificial styles and [h] also in some limited morphological cases like behesh: be + h + eʃ, in many cases (if not all), are being replaced by [fi]. In the case of [w], Parmoon is not agreed with Sadeghi in no way about considering [w] as a mediator environmentally. He believes that the form suggesting by Sadeghi for Zawu for the word of “Zao”, is completely wrong and it should be transcribed as za + fiw + u. Parmoon says:

a) Flap /j/ plays the role of an epenthesis when at least one of two previous vowels or the vowel after it is /i/. there are two exceptions:

- The epenthesis of this flap between the nouns ended in vowel and added /e/ after that

- The epenthesis of this flap between the negation prefix of /næ/ and the verbs that start with vowels.
- b) Voiced glottal fi has non-exceptionally the potential to play the role of an epenthesis between both vowels.

#### Methodology:

##### Data:

Since our discussion is on hiatus so in order to get the results, the words are taken into account which ends in vowels and the morpheme added to them starts with a vowel. In selecting the words, it has been tried to consider all six vowels of Persian language. Selecting the vowels is based on formal and informal speech. In cases that there is no example of special hiatus in Persian, the examples of Sadeghi [10] of the loan words with epenthesis is used.

Finally in each style, 36 combinations are selected and only on formal style was not found. It was the word ending in /æ/ and the morpheme after it should start with the vowel /u/. in informal style the word that ends in vowel /i/ and the morpheme that starts with /u/ and also the word that ends in /æ/ and the next morpheme starts with vowel /u/, is not found.

So, 35 combinations in formal and 34 combination in informal style were selected.

##### Analysis:

After selecting the related words, these words are read by a female narrator and recorded. Recording the data was done by PRAAT software. After that, the recorded data were analyzed by the PRAAT software.

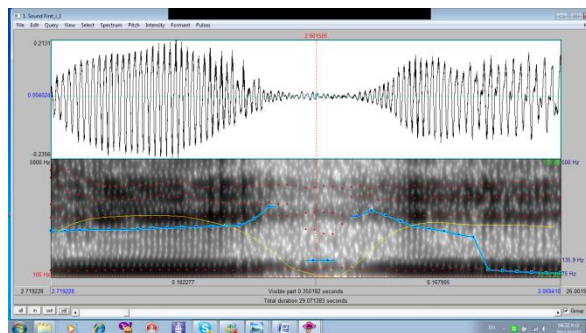
##### Measuring method:

In data analysis, the last vowel of the first word and the first vowel of the second morpheme and also the epenthesis between these two vowels ( in case of presence) were analyzed.

Since the article of Sadeghi [10] mentioned the epenthesis of [h, w, j, ?], the aim of these measurements was the presence/absence of these consonants between two vowels. Then since in some sources [8], different features were mentioned for these consonants, the aim was to determine the acoustic features in case of observance. So, the intensity, delay and modulation of the epenthesis and the waves around it were measured by intensity track and pitch track. The curve of intensity was used to obtain the number of modulation intensity for the first vowel by clicking on the peak of the vowel. These numbers were done for the second and epenthesis consonant. Finally, the sound wave between the vowels is magnified and the length of the epenthesis was measured.

In the figure below, the dotted red lines show the structure. The vowels and consonants (semi-vowels) including the nasals, flaps and trills. But the constructs are related to the darkest and more continuous than others. It should be noted that darkness or lightness of the constructs is related to intensity. That is as the oral canal is open in producing a sound the sound will be more intensified and vice versa. So the intensity of the consonants is less compared to the vowels. The curve of the intensity is shown by the color yellow and the intensity of the produced phone is shown based on desi-bell.

Now we deal with the modulation of the sounds. Modulation has a direct relationship with the vibration of vocal cords. The blue line in the figure of modulation shows the vibration of the cords. So, there are blue lines in each figure we face a voiced vowel and not seeing the blue lines show the existence of a voiceless sound. Modulation unit is Hertz.



Wave form, spectrograph, modulation and intensity of i,i continuation in the word [kaʃiʔi].

##### Data analysis:

##### Presence/absence of epenthesis:

Sadeghi [10] considers the presence of the epenthesis certain in Persian and introduced 4 vowels of [j, w, ʰ, ʔ] as epenthesis. He believes that the consonant [h] is always used in complete form and is used as phoneme. The consonants [j] is pronounce completely but two consonants of [w] and [ʔ] are pronounced so weak that some writers ignore it and show its spectrograph in case of vocal cord vibration.

Kordzaferanloo [4] believes that in case of hiatus, a glottal stop is inserted as the epenthesis and after the derivational consonant of [mi-] if the used stems start with vowels, a glottal stop is inserted but in informal speech the consonant [j] is inserted between two vowels.

Parmoon [8] believes that the consonants [ʔ,h,w] is not seen as epenthesis and the consonant [v] has low frequency. According to Parmoon [j] only plays the role of the epenthesis when one of the vowels before and after that is the vowel [i]. He adds that the voiced glottal [ɦ] is non-exceptionally the potential to be inserted between two vowels as the epenthesis. Since the [h] is inflectional according to Parmoon, so it is not studied as the epenthesis. But since the discussion that these consonants are voiced is mentioned here, so the acoustic features are studied too.

In this part, the context of each consonant of [ʔ, h, w, j] in recorded data is studied separately:

#### Consonant [j]:

Among the recorder data, it is expected in informal style, that in 10 words, in formal style in 4 words, the epenthesis [j] is seen. As it is seen in section three, in perceived researches it is known that if the length of the structure is more than 40-60<sup>th</sup> thousands in seconds and less than 0.0001 seconds, a flap is heard between two vowels and if this number is more than 100, the combination of vowel-vowel is understood [3]. So, the following results are obtained:

The context of transition duration in vowel [i] context in milliseconds in informal style.

average	Repetition4	Repetition3	Repetition2	repetition 1	contextThe conversational style
-	-	-	-	-	i-i
49	47	50	50	50	i-e
32	-	38	52	40	i-æ
46	48	44	51	44	i-o
61	48	50	59	87	i-a
40	-	61	38	63	e-i
41	54	45	35	31	æ-i
33	-	33	54	48	u-i
60	53	57	68	62	o-i
47	-	55	65	68	a-i
41					averagetotal:

In informal speech the construct transition is not seen in [i-i] since both vowels have same features and the flap [j] is not recognized in this context. But in other context the vowel [i], transition is seen with 41 millennium seconds and if the hearing criteria is considered, it is flap.

Duration structural transition in the context of vowel [i] milliseconds in informal style

average	Repetition4	Repetition3	Repetition2	Repetition1	Context
49	47	50	50	50	i-e
51	50	69	56	30	i-o
34	47	36	25	30	i-a
59	63	63	55	57	o-e
48/2					averagetotal:

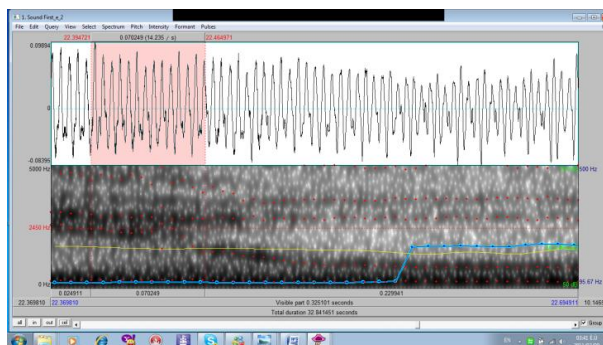
As can be seen in four contexts, the [j] is inserted.

#### Consonant [w]:

According to Sadeghi [10], insertion of the flap [w] is not seen in any official context but it is seen in informal speech in the context in which one of two vowels are [o] or [u]. In recorded data, it is expected that in 12 words in informal speech, the insertion of [w] is seen. Based on this, the research of Kent and Reid [3] are used and it is concluded that:

Transition in vowel context of [o] and [u] based on millennium seconds in informal style

average	repetition4	repetition3	repetition2	repetition1	Context in informal style
58/2	65	68	42	58	e-o
79	75	90	79	72	e-u
60/5	67	64	58	53	æ-o
58/5	66	63	62	43	u-e
60/5	68	65	58	51	u-æ
49	-	49	-	49	u-o
64/6	58	71	65	-	u-a
54/6	69	62	33	-	
-	-	39	58	53	o-æ
80/3	45	53	143	-	o-u
-	-	-	-	-	o-o
58/5	53	-	64	-	o-a
52					averagetotal:

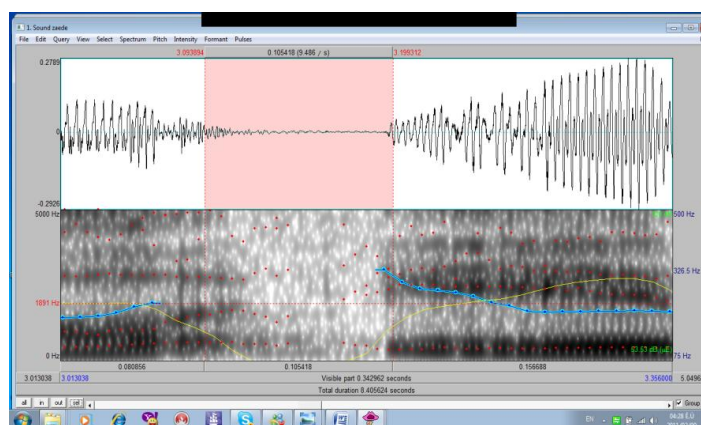


Wave for, spectrograph and intensity of e and u in the word [gerjew].

In Persian the transition is not seen in context of [o, o] since both vowels have the same feature and the flap [w] cannot be recognized in this context (continuance of [u, u] necessitated the presence of epenthesis [w] which does not exist in Persian.

#### Consonant [ʔ]:

In all the recorded data, it is expected that in formal style in 23 words and in informal speech in 12 words, the glottal stop is inserted. First the words are studied in this term to see if a real glottal stop is inserted or not.



Wave form and spectrograph of the e and a in the word [zaʔede]

In all cases that it is expected to have glottal stop, the wave was disordered and less intensified. These results are based on studying the intensity of vowels around and the intensity of the epenthesis.

#### Intensity of the first and second vowels of the epenthesis [ʔ] in formal style

intensity of the epenthesis	intensity of second vowel	intensity of first vowel	Context
57/5	73	76	i – i
67	69	70	i – æ
57/5	70/5	75	e – i
72	73/5	73	e – e
68/5	69/5	72/5	e – æ
58	70	71	e – u
69	76	73/5	e – o
62	67	68	æ – i
69	66	68	æ – e
64	65/5	67	æ – æ
60	69/5	76	u – i
62	73	74	u – e
60	65	72	u – æ
62/5	72	78	o – i
67	68	72/5	o – æ
64	73	77	o – u
54	71/5	76	a – i
57/5	73/5	71	a – e
55	66/5	72	a – æ
59	74	72	a – u
59	76/5	80	a – o
62	70	73	Averagetotal

As the data shows, the intensity of the produced vowels between is 62 Desi bell in average in which 11 Desi bell is less than first vowel and 8 Desi bell less than second vowels. The intensity of the first and second epenthesis [ʔ] in informal style

intensity of the epenthesis	intensity of second vowel	intensity of first vowel	Context
70	69	72	e-æ
66	78	70	e-u
68	67	72	u-e
68	80	71	u-æ
69/5	68	69	u-o
69	69	69	o-æ
69	72	75	o-u
68/5	66	72	o-o
68	69	67	o-a
72	69/5	73	a-e
71/5	69	73	a-æ
69	70/5	71	Averagetotal

In informal style, the average of the sound intensity between two vowels is less than 2 desi bell less than the first vowel and 1.5 desi bell less than second vowel.

#### Consonant [h]:

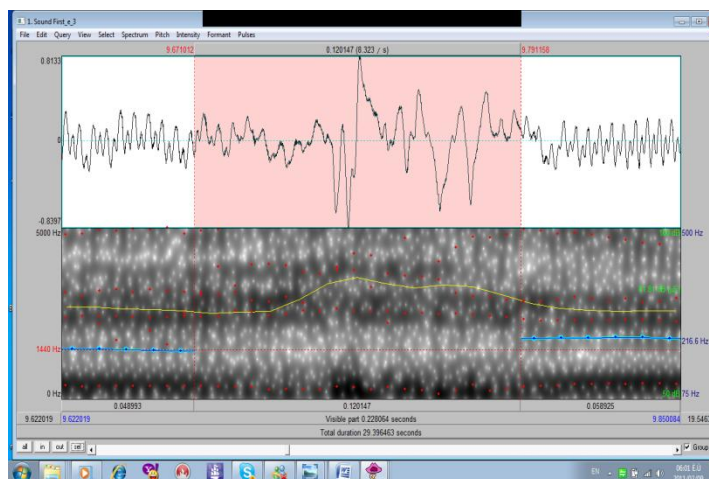
In recorded data in formal style [h] is not seen at all but in informal speech in the vowel the [h] is expected. As it is known, in Persian [h] is voiceless but the spectrograph of this phone shows vibration of vocal cords in one case. So, the allophone [ɦ] is seen in this word. In the charts, both vowel and wave are seen but the related wave is not simpler than the vowels around and only the intensity of the wave is less than the vowels around.

The intensity of the first and second vowel and epenthesis [h] in informal speech

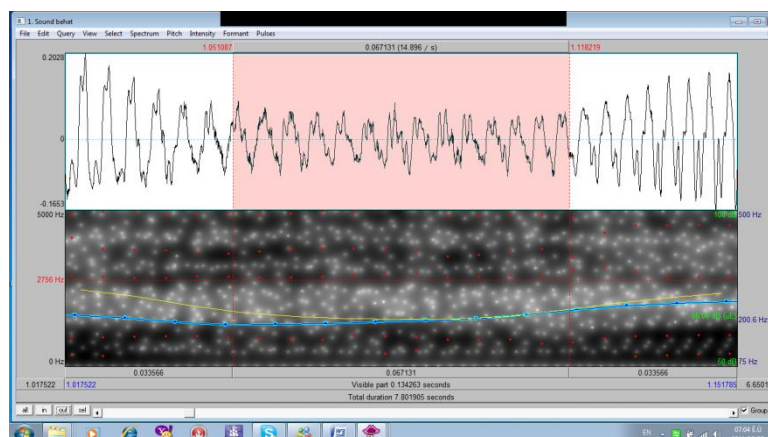
voice	intensity of epenthesis	intensity of second vowel	intensity of first vowel	context
voiceless	72	73/5	73	e-e
voiced	70	69	72	a-a

So the aspirational voice between two vowels are not found in the given data and only the intensity of the sound is reduced that can be attributed to vowels.

In context [e-e] in all the repetitions, the voiceless fricative is produced:



The wave form and spectrograph and modulation curve of e,e in the word /behet/ In context a-a in all repetitions [h] is seen as voiced and with ordered wave.



Wave form, spectrograph and modulation in [a,a] in the word [bahat]

### Conclusion:

3 question and 3 hypotheses were suggested. The first question was “if an epenthesis occurs in hiatus of informal and formal speech?”

The related hypothesis was that the epenthesis happens in formal and informal speech.

Sadeghi [10], four vowels of [w,i,h,j] are studied as the epenthesis vowels. Two vowels of [j,w] are studied by inferential studies of Kent Varid [3] and about [h,ʔ] it is concluded that changes in structure of epenthesis consonant and the vowels around it are studied.

Parmoon [h,i] does not exist in informal Persian. [j] Only exists in some artificial styles and [h] only exists in some inflectional cases such as be+ h+eʃ in most cases it can be replaced by [h̄].

Kordzaferanloo [4] believes that in case of hiatus, a glottal stop is inserted as the epenthesis and after the derivational consonant of [mi-] if the used stems start with vowels, a glottal stop is inserted but in informal speech the consonant [j] is inserted between two vowels.

Parmoon [8] did not a study about informal style and it should be mentioned that in informal Persian the epenthesis [i] is inserted when the first and second vowel or both are [i] or the consonant [w] is inserted when the o and u context exists. In some context, the possibility of having glottal stop as the epenthesis exists and about [h] it should be mentioned that this consonant is not conditional.

The second question was that “if yes, what is the acoustic feature of the consonant in the hiatus?”. The hypothesis related to it is that in hiatus in Persian, the inserted consonants have different acoustic features. The results of the study about presence or absence of the epenthesis consonants [i,j,h,w] and acoustic features show that:

- *Stop glottal consonant [i]:*

In the recorded data, it was expected that in formal style in 23 words and in informal style in 12 words, this phone is inserted. Only in one case the glottal stop is seen (the word zaʔede) that is the context of [a-e]. in other cases in both styles, in the place that is expected, the glottal stop causes disordered wave and less intensity. Since this wave is disordered, according to Ladefoged [7], the produced vowel is whisper.

- *Fricative glottal consonant [h]:*

In recorded data it is not seen in formal speech but in informal speech it is seen in 2 contexts as conditional inflectional. Since, the related wave in this context is not simpler than the vowels around; the aspirational voice is not seen.

- *Labio-alveopalatal [w]:*

According to Sadeghi [10], insertion of the flap [w] is not seen in any official context but it is seen in informal speech in the context in which one of two vowels are [o] or [u]. In recorded data, it is expected that in 12 words in informal speech, the insertion of [w] is seen. Based on this, the research of Kent and Reid [3] are used and it is concluded that the transition happens in 51.9 seconds and only the context of [o,o] does not have transition and [w] was unrecognized.

- *Palatal flap [j]:*

In informal style, that in 10 words, in formal style in 4 words, the epenthesis [j] is seen. As it is seen in section three, in perceived researches it is known that if the length of the structure is more than 40-60<sup>th</sup> thousands in seconds and less than 0.0001 seconds, a flap is heard between two vowels and if this number is more than 100, the combination of vowel-vowel is understood [3].



The third question was that "If the answer to no, what is the determination for syllabus structure of the Persian language? it is assumed that general by inserting the consonant (epenthesis) and preventing hiatus, three patterns are insured in Persian Syllable.

Syllables of Persian language include: CV,CVC ,CVCC. In Iran and outside Iran, most people including Kramsky, Nye, Jazayeri and Paper, Samare, Alamolhoda, Biji Khan, Esmaili, Build studied the syllable of Persian language [12].

As the name of the researchers mentioned above shows, all agreed on CVCC, CVC, CV in formal style. But the present study concluded that a different structure exists. That is a structure which can begin by vowels. Although in some of the words studied in this research, the combination of VV has been observed which can be interpreted as the existence of the structure VCC, VC,V but decisive opinion is not given here.

## REFERENCES

- [1] Crystal, D., 1992. A dictionary of linguistics and phonetics. Oxford: Blackwell.
- [2] Haghshenas, A., 2001. Title in the Persian language and script. Proceedings of the Fourth Conference on Theoretical and Applied Linguistics. Tehran: AllamehTabatabai. Pp. 151-163.
- [3] Kent, R. and C. Read, 1996. The acoustic analysis of speech. California: Singular Publishing Group.
- [4] Kordzaferanloo, A., 2003. Glottal stop insertion or deletion in Persian, Tehran, Iran studies Institute, 2(72-93).
- [5] Ladefoged, P. and I. Maddieson, 1996. The sounds of the world's languages. Oxford: Blackwell.
- [6] Ladefoged, P., 1996. A Course in phonetics. USA: Thomson.
- [7] Ladefoged, P., 2003. Phonetic data analysis: An introduction to fieldwork and instrumental techniques. Oxford: Blackwell.
- [8] Parmoon, Y., 2002. Persian phonetic system standard dialog Today: generative approach, the weighted (prosodic) and vocabulary. Ph.D. Dissertation, University.
- [9] Pike, K.L. and E.V. Pike, 1947. Immediate constituents of Mazatec syllables. International Journal of American Linguistics, 13: 78-91.
- [10] Sadeghi, A., 2002. Hiatus and epenthesis. Journal of linguistics, 22-36.
- [11] Samare, Y., 2000. Persian language phonetics. Tehran: Center for Academic Publication.
- [12] Zohrevandi, L., 2011. Evaluate the impact of the construction of Persian syllable pronunciation of English words from the perspective of optimality theory. Master's thesis, Islamic Azad University.
- [13] Zygis, M., 2010. Typology of consonantal insertion. ZAS papers in linguistic 52.