3. Phonological change of vowel length in Farsi

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Abstract:
There are six vowels in the modern Farsi. Generally it is claimed that vowel length is not a phonemic characteristic in this language. On the other hand, many of the researchers show that the deletion of glottal consonants in the coda cluster is followed by a compensatory lengthening in Farsi. The purpose of this paper is to analyze minimal pairs having contrast only in vowel length. Forty words were collected for this purpose. These words are arranged into monosyllabous minimal pairs. It's argued that glottal consonants are analogically deleted in coda. This phonetic process causes vowel lengthening. Hereby, many words are equally except of their vowel length. This leads to the existence of minimal pairs with different vowel length. Conclusion is that vowels are under progressing change and probably vowel length will be one of the phonemic features of the vowels in Farsi.

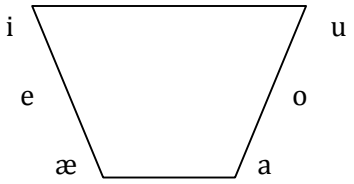
Keywords: Farsi vowels, vowel length, Compensatory lengthening.

Full Text:

Introduction:

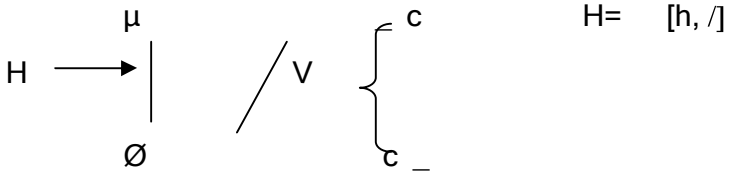
The syllabic structure of this language is cv(c)(c). It is necessary for onset to have a consonant. Before any discussion, it is needed to have a skip on the vowels of Farsi.

The phonemic system of this language consists of six vowels mentioned below:



Following Ladefoged (2006), vowel length is the duration of a vowel sound. Vowel length is not a phonemic feature in Farsi. According to kavitskaya (2002), the term compensatory lengthening refers to a set of phonological phenomena wherein the disappearance of one element of a representation is accompanied by a compensatory lengthening of another element.

Sadeghi and Bijankhan (2007) suggest that vowel length is dependant to the laryngeal variation of glottal consonant [/] in coda position. Shademan (2005) shows that the vowel duration in the first syllable of (CVG. CVG) words in significantly affected by the deletion of the glottal consonants. Kurd zafaranlu (2007) investigated this process on the base of rule-based phonology. She describes the deletion of [h] and [/] in the coda cluster as the following rule:



Quoting from Shademan (2005), Darzi (1991) suggests that Farsi exhibits compensatory lengthening, which is triggered by the deletion of glottal consonants (/, h) in coda position in informal speech. Following this, Shademan adds that there could be surface minimal pairs, which would contrast only with respect to vowel

length. He believes that there are indeed vowels contrasted in the length resulted from compensator lengthening.

Toosarvandani (2004) suggests: "I hypothesize that the vowel system of modern Farsi is a transition state between Classical Persian's system, which possessed a distinction of quantity alone, and the system of a future Farsi that will have eliminated quantity from its surface and underlying representations and will only distinguish qualitative differences among the vowels. Thus, at some future stage in the language, internal forces that have been decreasing the surface realization of length will have gone to completion. It will then be necessary to reanalyze Farsi's vowel system as possessing underlying quality alone."

Analysis:

As mentioned above, syllabic structure of Farsi is cv(c)(c). A consonant must exist in the onset. Some of the word roots begin by a vowel. These roots are loan words or heritages from ancient Persian language. When they are pronounced by a Persian speaker, the glottal consonant [/] is inserted in the beginning of their first syllable. The rule mentioned below describes this process:

[æŋ | iz] → [/æŋ | iz]	'invoke'
[avær] → [/ avær]	'bring'
[ay] → [/ay]	'come'
[æfkæn] → [æfkæn]	'throw'

Rule: Ø → [/] / # – v

If the words resulted from this rule be added to the end of other words with c v c(c) structure, the inserted glottal stop will be removed and the final consonant of the previous word takes its place. (.) is a mark for distinguishing syllables in the following examples:

[del] + [/æŋ.|iz] ⟶ [de.læɪ̯). | iz]

'heart' 'invoke' 'attractive'

[ʃ ærm] + [/a.vær] ⟶ [ʃ ær.ma.vær]

'shame' 'bring' 'shameful'

[bomb] + [/æf.kæn] ⟶ [bom.bæf.kæn]

'bomb' 'throw' 'bomber'

It is clear from these examples that when a word begins by a vowel, the glottal consonant [/] is inserted in its beginning for providing cv(c)(c) structure. But it will be removed and replaced by the final consonant of the previous word which is adjacent to it. This is a generative rule in Farsi. The deletion of the inserted sound [/] analogically has been extended to some of the other [/] sounds that are part of the root. Compensatory lengthening resulted from the deletion of [/] sound gives life to some minimal pairs contrasted in vowel length:

/ bæd / ⟶ [bæd] 'bad'

⟶ [bæd] ~ [bæ d]

/ bæ / d / ⟶ [bæ d] 'next'

/ ræd / ⟶ [ræd] 'refuse'

⟶ [ræd] ~ [ræ d]

/ ræ/d / ⟶ [ræ d] 'thunder'

/ tæn / ⟶ [tæn] 'body'

⟶ [tæn] ~ [tæ n]

/ dæ.va / ⟶ [dæ va] 'fight'

One of the principles in generative phonology is that diachronical change of a sound is a result of change in phonological distinctive features. Whenever a phonological feature of a sound goes under change, it may impact on all of the sounds sharing at that feature. [+laryngeal] is one of the phonemic features of the sound [/]. The sound [h] in Farsi also shares with [/] at this feature. Then, [h] changes similar to the sound [/] due to change in the shared feature:

/bot/ → [bot] 'Idol'

→ [bot] ~ [bo⌉t]

/boht/ → [bo⌉t] 'surprise'

/mo.sen/ → [mo.sen] 'old'

→ [mo.sen] ~ [mo⌉sen]

/moh.sen/ →[mo⌉.sen] 'a proper name'

/tæ.vil/ → [tæ.vil] 'long'

→ [tæ.vil] ~ [tæ⌉.vil]

/tæh.vil/ → [tæ⌉.vil] 'deliver'

/sæm/ → [sæm] 'poison'

→ [sæm] ~ [sæ⌉m]

/sæhm/ → [sæ⌉m] 'share'

These issues show that the deletion of [/] and [h] results in the existence of minimal pairs which are in contrast by vowel length.

According to Arlotto, Sossur's method for reconstruction of the vowels of Indo-European mother language is mostly noticeable. Reciting from Arlotto, sossure assumes that the Indo-European mother language has sounds called sonantic coefficient. Following Sossure, the deletion of these sounds historically leads to vowel lengthening. Sonantic coefficients are sounds like [/], [h], [y], [w].

This states a close relation between vowel length and the deletion of the mentioned sounds. Hereby, it's logical to say that the deletion of [/] and [h] has been begun in Farsi previously. This deletion process causes compensatory lengthening. Creating minimal pairs with different vowel length, this deletion process leads to a change in the phonemic characteristic of vowel length in Farsi.

Conclusion:

It was argued firstly that [/] is inserted in the beginning of some words to provide cv(c)(c) syllabic structure. The inserted [/] is conditional and will be replaced by the final consonant of the preceding word during word combination process. The deletion of [/] diachronically affected the sound [h] since they share at [+laryngeal] feature. This process in modern Farsi led to many minimal pairs that contrast in vowel length.

Assumed to be continued in future, this phonetic process will turn the vowel length into a phonological characteristic. Finally, it is prognosticated that on the condition of continuing this phonetic process, vowel length will be a distinctive feature in the vowel system of Farsi.

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