Assimilation of Final Low Back Vowel in Eghlidian Dialect

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Abstract

In this article, the low back vowel /ɑ/ in word-final positions in Eghlidian dialect, one of Persian dialects, is studied. This vowel is represented phonetically as [ɑ], [o] and [ə] in different phonetic environments. Therefore many words were collected via interviewing ten native speakers so that these different alternant forms can be accounted for appropriately. Since one of the authors of this article is a native speaker of the dialect, the verity of the data is confirmed. In writing this article, the collected data were classified in terms of different alternations of the vowel /ɑ/, then related contexts were analyzed. Analysis of data showed that, firstly, in individual words, the final vowel /ɑ/ is pronounced as [o] when it is preceded by a non-glottal consonant; however, it is pronounced as [ɑ] when preceded by a glottal consonant and, secondly, in continuous speech, as a result of an assimilation, the final position vowel /ɑ/ is pronounced as [o] and [ə], respectively according to the graveness and acuteness of its preceding consonant.

Keywords: Assimilation, Eghlidian Dialect, Grave, Acute, Raising

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1. Introduction

The low back vowel /ɑ/ in Eghlidian dialect, one of the southwestern dialects of Persian language, behaves differently in final positions of different words. In individual words, the final vowel is represented phonetically as [ɑ] and [o]. In continuous speech, this final vowel sometimes remains unchanged, but sometimes it is represented phonetically as [o], and sometimes as [ə].

This dialect has not been studied linguistically so far and this article can, in fact, be the first linguistic study of the dialect. All studies conducted in relation to this dialect are limited to just collecting words and idioms existing in the dialect and they have been conducted mainly from non-linguistic perspectives. However, the dialects of the adjacent areas of Eghlid have been studied; for example, Salami (2002, 2005, 2007) has studied dialects of Papuni, Kalani, Richi, Davani, Kazeruni, Koroshi, Hayati,…. in three books. Nematollahi (2005) has studied the phonologic, morphologic and syntactic aspects of dialect of Abadeh (a region with a distance of about 40 km to Eghlid).

In this article, the authors try to investigate how the vowel /ɑ/ is represented phonetically as these alternant forms.

2. Methodology

In order to conduct the study, ten native speakers, selected from different age groups (from 15 to 60 year-old ones) and different educational levels (from uneducated to high-level educated ones) were interviewed. Then their vernacular speech was recorded and phonetically transcribed. In the result linguistic corpus, containing more than 500 utterances, the vowel /ɑ/ was studied in word-final position both in individual words and in continuous speech.

3. Data Presentation

The data presented in this article are some utterances of the Eghlidian dialect in people's vernacular speech. In every utterance, as shown below, there is at least one word that ends in the low back vowel /ɑ/. This vowel (which has been bold-written) is produced as [o] in some words, and as [ə] in some others.

Prior to presenting the data, it seems necessary to introduce the consonants and vowels inventories of the Eghlidian dialect in the form of two tables of distinctive features.

3.1. Tables of Distinctive Features

3.1.1. Table of Distinctive Features of Consonants (Hyman, 1975; cited by SPE)

	p	b	t	d	c	ɟ	f	V	s	z	ʃ	ʒ	x	G	tʃ	dʒ	m	n	l	r	j	h	ʔ
consonant	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
syllabic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
sonorant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	-	-
high	-	-	-	-	+	+	-	-	-	-	+	+	+	-	-	-	-	-	-	-	+	-	-
back	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-
low	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
anterior	+	+	+	+	-	-	+	+	+	+	-	-	-	-	+	+	+	+	+	+	-	-	-
coronal	-	-	+	+	-	-	-	-	+	+	+	+	-	-	+	+	-	+	+	+	-	-	-
voice	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	+	+	+	+	+	-	-
continuant	-	-	-	-	-	-	+	+	+	+	+	+	+	-	-	-	-	-	+	+	+	+	-
nasal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-
strident	-	-	-	-	-	-	+	+	+	+	+	+	-	-	+	+	-	-	-	-	-	-	-
delayed release	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
round	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
grave	+	+	-	-	-	-	+	+	-	-	-	-	+	+	-	-	+	-	-	-	-	+	+
labial	+	+	-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
palatal	-	-	-	-	+	+	-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	-	-

3.1.2. Table of Distinctive Features of Vowels

	i	e	a	u	o	ɑ
syllabic	+	+	+	+	+	+
back	-	-	-	+	+	+
high	+	-	-	+	-	-
low	-	-	+	-	-	+
long	+	-	-	+	-	+
round	-	-	-	+	+	-

3.2. Data

Standard Phonology	Eghlidian Dialect	Meaning
da?v**ɑ** cardand	da:v**o** cerdan	They fight
?az ɟarm**ɑ** mordim	?a ɟarm**o** mordim	We died of heat
bi dast va p**ɑ** bud	bi das p**o** bi	He/She was awkward
m**ɑ** hanuz ?ɑmade nistim	m**o** hani ?ɑmade nissim	We are not ready yet
sarm**ɑ** bidad mikone	sarm**o** bidad mikona	It is very cold
ʃom**ɑ** ?made-?id	ʃom**o** ?ɑmadejc	Are you ready?
?un**ɑ** kɑkɑ hastand	?un**ɑ** kɑk**o** hassan	They are brothers
?az hezarp**ɑ** mitarsam	?a hezarp**o** mitarsam	I am afraid of myriapod
fard**ɑ** mi-?ɑjam	sab**o** mijam	I will come tomorrow
nemix**ɑ**had bi-aji	namx**o** bijoj	You do not need to come
fard**ɑ** ʃab	fardəʃow/fardiʃow	tomorrow night
?ɑndʒ**ɑ** neʃaste ?ast	?undʒ**ə** neʃessa	He/She has sit there
hɑl**ɑ** hɑl**ɑ**hɑ ɟirim	hɑl**ə** hɑl**ə**hɑ ɟirim	We are in trouble now
tanh**ɑ** ?ɑmade-?i	tejn**ə** ?umadej	Have you come alone?
?az pahn**ɑ** beɟir	?a pa:n**ə** biɟir	Take it in the width
bejand**ɑ**z ?indʒɑ	bend**ə** ?indʒo	Throw it here
?indʒ**ɑ** beneʃin	?indʒ**ə** biʃin	Sit down here
tʃand l**ɑ** bud	tʃan l**ə** bi	Of how many layers it was?

ʔɑn sɑʔat raft tehrɑn	ʔusə raf te:run	He/She went to Tehran at that time
rezɑ ʔɑmade ʔast	rezə ʔumada	Has Reza come?
zahrɑ rafte ʔast	za:rə rafta	Has Zahra gone?
tʃand tɑ xaride-ʔi	tʃan tə xaridej	How many have you bought?
kodʒɑhɑ rɑ ɟaʃte-ʔid	kodʒəhɑr ɟaʃtejc	Where have you searched?
pejdɑ ʃod	pejdə ʃo	Was it found?
tʃand dʒɑ rafte-ʔi	tʃan dʒə raftej	How many places have you gone?
najɑ ʔindʒɑ	najə ʔindʒo	Do not come here
mive hɑ rɑ dʒodɑ nakon	mivɑr dʒodə nakon	Do not separate the fruits
xodɑ rɑ ʃocr	xoda rə ʃoc/xodɑ ri ʃoc	Thanks God.

4. Data Analysis

What is to be studied is the final vowel /ɑ/ produced as [o] and [ə] in the phonetic representation. In order to analyze the data, we begin by studying the final /ɑ/ in individual words. The following set of data include the same words above in which the alternant forms [o] and [ə] were seen.

4.1. Some Data as Individual Words

Standard Phonology	Eghlidian Dialect	Meaning
ʃoma	ʃomo	You(plural)
ɟarma	ɟarmo	Heat
daʔva	da:vo	Fight
kaka	kako	Brother
hezar pa	hezar po	myriad
…….	sabo	Tomorrow
farda	fardo	Tomorrow
ʔandʒa	ʔundʒo	There
dʒa	dʒo	Place
ta	to	(a numeral unit)
ja	jo	Or
kodʒa	kodʒo	Where
hala	halo	Now
bejandaz	bendo	Throw
ʔan saʔat	ʔuso	that time
pejda	pejdo	Visible
dʒoda	dʒodo	separated
ma	mo	We
ʔindʒa	ʔindʒo	Here
sarma	sarmo	Coldness
ʔeʒdeha	ʔeʒdeha/ʔeʒda	a mith big snake
ha/ bale	ha	Yes
ʔeddeʔa	ʔeddeʔa/ʔedda	Claim
doʔa	doʔa/da	Pray
xaneha	xuna	Houses
ʔanha	ʔuna	They
golha	gola	Flowers
deraxtha	deraxta	Trees

As can be seen above, in some words, the underlying low vowel /ɑ/ in standard phonology is changed into [o] in Eghlidian dialect. This change can be shown through the follwoing rule:

Rule 1:

a → o / — #

However, in the same context in some other words, the low vowel /ɑ/ is not changed into [o]. According to the table of distinctive features of vowels, the vowel /ɑ/ with the features [-high, +low] is changed into the vowel [o] with the features [-high, -low]. It means that the low vowel /ɑ/ has been raised to the mid vowel [o] in the phonetic representation. In Crystal (2003, p. 386), raising has been defined as "a vertical process affecting tongue height". Since raising occurs in a gradable form in Persian (Kord, 2003), this low vowel is changed to the mid one. In terms of distinctive features involved in this phonological process, this rule can be rewritten as:

$$\begin{bmatrix} -consonantal \\ -high \\ +low \\ +back \end{bmatrix} \rightarrow [-low] — \#$$

To account for this raising, some hypotheses can be considered:

Hypothesis 1: Raising of final vowel /ɑ/ occurs only in stressed syllables.

Hypothesis 2: Raising of final vowel /ɑ/ occurs only in monosyllabic words.

Hypothesis 3: Raising of final vowel /ɑ/ is affected by the preceding consonant.

4.2. Analysis of Hypotheses

4.2.1. Analysis of the First Hypothesis

In the first hypothesis, it is supposed that the raising of final vowel /ɑ/ takes

place only in stressed syllables. In order to investigate this hypothesis, some words were chosen and studied in terms of existence or non-existence of stress on the underlying vowel /ɑ/.

Standard Phonology	Eghlidian Dialect
fardɑ	fardo
ʔindʒɑ	ʔindʒo
ʔɑndʒɑ	ʔundʒo
dʒɑ	dʒo
ʔeʒdehɑ	ʔeʒdehɑ / ʔeʒdɑ
hɑ	hɑ
xɑnehɑ	xunɑ

In all of the above words, both in words with final raised vowel and in words with no vowel raising, the underlying vowel /ɑ/ is stressed. Of course, this is a natural phenomenon; the above words are all either verbs, adverbs or adjectives, and in Eghlidian dialect, in all of these categories the final syllable is stressed. If we want to exemplify an imperative verb (since these kinds of verbs are initial-stressed) the verb /vɑjsɑ/ (meaning "stand up") produced as [vojso] is a good example. In this word, the underlying vowel /ɑ/ is changed to [o], although it is unstressed. Therefore, stress cannot be an influential factor in raising the final vowel /ɑ/.

4.2.2. Analysis of the Second Hypothesis

In hypothesis 2, the raising of final vowel /ɑ/ apparently occurs in monosyllabic words. Some words were chosen and syllabified in order to investigate this hypothesis.

Standard Phonology	Eghlidian Dialect
dʒɑ	dʒo
mɑ	mo
ʔɑndʒɑ	ʔundʒo
fɑrdɑ	fardo
hɑ	hɑ
golhɑ	golɑ

The first two words in the examples presented above are monosyllabic and the third and fourth are disyllabic; however, in all these words the vowel /ɑ/ is raised to [o]. On the other hand, in the last two words raising cannot be seen at all; however, the first one is monosyllabic and the second one is disyllabic. Therefore, the number of word syllables cannot be an influential factor in the raising of final vowel /ɑ/.

4.2.3. Analysis of the Third Hypothesis

In this hypothesis, the authors suppose that the raising of final vowel /ɑ/ is affected by its preceding consonant. To investigate the claim, some words were chosen and studied in terms of the consonant before the underlying vowel /ɑ/.

Standard Phonology	Eghlidian Dialect
hɑlɑ	hɑlo
bejandɑz	bendo
ʔɑn sɑʔɑt	ʔuso
ʔɑnhɑ	ʔunɑ
golhɑ	golɑ
ʔeddeʔɑ	ʔeddɑ

As seen in the above words, the final vowel /ɑ/ remains unchanged when the preceding consonant is a glottal consonant /h/ or /ʔ/, while it is changed to [o]

when the preceding consonant is either oral or nasal. In other words, these two classes of consonants, glottal and non-glottal, in the prevocalic /ɑ/ position are in complementary distribution and bear two variant forms in the phonetic representation. In view of this constriction, the above rule can be rewritten so that it is capable of accounting for these alternant forms:

$$\begin{bmatrix} -\,cons \\ -\,high \\ +\,low \\ +\,back \end{bmatrix} \rightarrow [-\,low] / \begin{bmatrix} +\,cons \\ -\,glottalic \end{bmatrix} \_\_ \#$$

This rule can raise the low vowel in final position after the non-glottal consonants. But in [ʔeʒdɑ] and [ʔeddɑ], there is no raising in the vowel /ɑ/. The underlying representation of these words are respectively /ʔeʒdehɑ/ and /ʔeddeʔɑ/. This underlying glottal consonant prevents the final low vowel to be raised, although sometimes it is not represented phonetically. Glottal consonants are rarely found in non-initial position of words in Persian dialects, and they are to be deleted. The plural morpheme /hɑ/ is presented phonetically with the glottal consonant deleted in Eghlidian dialect in most words. The rule of /h/ deletion in plural morpheme can be shown in this rule:

Rule 2:

$h \rightarrow ø \ / C + \_\_ V$

In plural nouns formed by the affixation of plural morpheme /hɑ/, there is no raising in the low vowel /ɑ/. The reason for this non-raising can be the "shared feature" of the vowel /ɑ/ and glottal consonants, since both are [-high]. Although the underlying glottal consonant has no phonetic representation, its effect on the following vowel remains fixed. The order of the rules involved in derivation of plural nouns, such as the word [golɑ] meaning "flowers" is as follows:

Representation 3:

/# gol + hɑ # / UR
…… Rule 1 (vowel raising)
/golɑ/ Rule 2 (/h/ deletion)
[golɑ] PR

This representation shows that the rule of vowel raising has been applied before the rule of glottal-consonant deletion. If the order was reversed, the result would be the ill-formed *[golo].

Final-vowel non-raising is not restricted to the context in which there is a glottal consonant before the vowel. In the following data, too, the low vowel is not raised at all, since there is a glottal consonant after the vowel /ɑ/. Therefore, no raising can be seen.

4.3. Some Data with No Raising

Standard Phonology	Eghlidian Dialect	Meaning
tʃɑh	tʃɑ	Pit
ʃɑh	ʃɑ	King
ʔɑh	ʔɑ	Sigh
mɑh	mɑ	Moon
kɑh	kɑ	Straw
bexɑh	boxɑ	Want
kɑrgɑh	kɑrgɑ	a small factory
gonɑh	gonɑ	Sin
ʔettelɑʔ	ʔettelɑ	Information
ʔemlɑʔ	ʔemlɑ	Spelling

In 4-3 there is a glottal consonant in the context of the low vowel /ɑ/ at the

underlying representation. As we see, the glottal consonants have no phonetic representation; however, the low vowel /ɑ/ is not raised. In other words, the underlying glottal consonant, though not phonetically represented, prevents the low vowel to be raised.

The conclusion drawn from studying these sets of data is that the low vowel /ɑ/ in the final position remains as [ɑ] only in the context of glottal consonants; instead, it is represented phonetically as [o] in the context of non-glottal (oral and nasal) consonants.

5. Analysis of Utterances (data presented in 3-2)

Having mentioned this introduction and some necessary points, it is the time to investigate the main data of the article. The question is "why the final vowel /ɑ/ is changed to [o] in some contexts and to [ə] in some others?" To find an appropriate answer, we need to consider some hypotheses so that different phonological contexts will be studied. The hypothesis which is capable of accounting for all data will be the proper one.

Hypothesis 1: Production of [o] or [ə] depends on whether the underlying vowel /ɑ/ is stressed or unstressed.

Hypothesis 2: Production of [o] or [ə] depends on the consonant after the underlying vowel /ɑ/ in word boundary.

Hypothesis 3: Production of [o] or [ə] depends on the consonant before the underlying vowel /ɑ/.

5.1. Analysis of the First Hypothesis

In hypothesis one, the writers assume that stress is a main factor in the production of [o] or [ə]. In some languages, such as English, the vowel [ə] is a

weak one that is articulated in unstressed positions. Therefore, this vowel is likely to occur in unstressed syllables. To investigate this hypothesis some words were studied with respect to stress so that the role of stress could be determined in this alternation. The place of stress has been marked in these utterances.

Standard Phonology	Eghlidian Dialect
fardɑ mi-ʔɑjam	saˈbo mijɑm
bi dast o pɑ bud	bi das ˈpo bi
xodɑ rɑ ʃocr	xoˈda rə ʃoc/xodɑ ri ʃoc
tʃand dʒɑ rafte-ʔi	ˈtʃan dʒə raftej

As seen in the above data, the vowel [ə] is articulated in unstressed positions, and the vowel [ɑ] is articulated when it is stressed. We need some more data to evaluate the claim.

Standard Phonology	Eghlidian Dialect
nemixɑhad bijɑji	ˈnamxo bijoj
ʔɑndʒɑ neʃaste ʔast	ʔunˈdʒə neʃessa
pejdɑ ʃod	pejˈdə ʃo

The latter set of the above data shows that the central vowel [ə] is articulated in stressed syllables, too. Consequently, it can be concluded that stress has no role in representing the final underlying low vowel /ɑ/ in the form of [o] or [ə].

5.2. Analysis of the Second Hypothesis

In the second hypothesis, it is assumed that the consonant after the underlying vowel /ɑ/ in word boundary is an influential factor in its production as [o] or [ə]. To investigate this hypothesis, some words were studied in terms of the consonant after the final vowel in word boundary, or in other words, in terms of the initial consonant of the following word.

Standard Phonology	Eghlidian Dialect
ʃomɑ ʔɑmɑde ʔid	ʃomo ʔɑmɑdejc
daʔvɑ cardand	da:vo cerdan
najɑ ʔindʒɑ	najə ʔindʒo
miveha rɑ dʒodɑ nakon pejdɑ ʃod	mivɑr dʒodə nakon pejdə ʃo

In the above data, in the words that the underlying vowel /ɑ/ is changed into the mid vowel [o], the consonant after the underlying vowel is /ʔ/, /b/, or /c/. The consonant after the vowel [o] is one of the consonants /ʔ/, /n/ and /ʃ/. Therefore, it is apparent that the context for the production of [o] and [ə] can be overlapped, and the role of the following consonant in the alternation is suppressed.

5.3. Analysis of the Third Hypothesis

In this hypothesis, the researchers suppose that the consonant before the underlying vowel /ɑ/ is a factor in producing it as [o] or [ə]. To investigate this hypothesis, some words were studied in terms of the consonant before the final vowel.

Standard Phonology	Eghlidian Dialect
mɑ hanuz ʔɑmɑde nistim	mo hani ʔɑmɑde nissim
fardɑ mi-ʔɑjam	sabo mijɑm
nemixɑhad bijɑji	namxo bijoj
tʃand tɑ xaride-ʔi	tʃan tə xaridej
tanhɑ ʔɑmade-ʔi	tejnə ʔumadej
xodɑ rɑ ʃocr	xoda rə ʃoc/xodɑ ri ʃoc

The consonants before [o] are /x/, /m/ or /b/. On the other hand, the consonants before [ə] are /n/, /r/ or /t/. These two vowels are produced in these two different sets of contexts meaning that these two sets of consonants are in complementary distribution in this context. Therefore, the role of the consonants before the underlying final low vowel /ɑ/ in the alternation is confirmed.

Now it is time to investigate how the preceding consonant can affect this final vowel. Studying the data presented in 3-2 shows that when the consonant before the final low vowel /ɑ/ is one of the consonants /b, p, v, x, m/ the vowel /ɑ/ is changed into the mid back vowel [o]. On the other hand, when the preceding consonant is one of the /j, s, z, r, l, d, dʒ, n, t, d/ ones, the underlying vowel is changed to the central vowel [ə]. These two alternations can be shown in these two rules.

Rule 4:

ɑ→o / {b, p, m,v, k, x, G} — # C

Rule 5

ɑ→ə / {t, d, n, s, z, r, l, dʒ, j} — # C

Rule 4 shows that the low back vowel /ɑ/ is changed to the mid back vowel [o] after the labial, velar and uvular consonants in continuous speech.

Rule 5 shows that the low back vowel /ɑ/ is changed to the central [ə] after the palatal and alveolar consonants in continuous speech. The question is why these two contexts bear two alternant forms.

Hyman (1975, p. 31) states: "[p] and [k] share an acoustic property which [t] does not share with either one. Both [p] and [k], since they are made at the peripherals of the oral cavity (one at the lips and one at the back of the mouth), produce a concentration of the energy in the lower frequencies of the sound spectrum".

In the data presented in 3-2, the labial and velar consonants raise the low vowel /ɑ/ to [o] in the final position of the word; that is, the vowel /ɑ/ is raised and produced as the mid vowel [o]. On the other hand, the palatal and alveolar consonants show a different behavior. Hyman (1975, p. 32) continues to state that "since alveolar/dental and palatal sounds cut the oral cavity in two, they do not create a large oral cavity, but rather two smaller cavities. Consequently, they have in common a concentration of energy in the upper frequencies of the sound spectrum. Labial and velar consonants are said to share the property of graveness (low tonality), and alveolars and palatals share the property of acuteness (high tonality)". Therefore, in the data in 3-2, the consonants that come before the final low vowel and affect this vowel can be classified into the grave and acute classes.

While the overwhelming emphasis has been on the articulating side of the phonetics, there are distinct cases where phonological properties cannot be accounted for without considering the acoustic properties of the sounds in question. Roman Jackobson and Morris Halle were among the first linguists who paid attention to this aspect and introduced acoustic properties of sounds into linguistics. Graveness and acuteness were the main features Jackobson utilized to account for the change of vowel /a/ to [ɑ] before labial or velar consonants, such as /p/ or /k/, in feʔfeʔ Bamilike[1], since the articulatory phonetics was not capable of accounting for this alternation. Samareh (2005) states that "the function of air molecules to produce the sound wave and studying its acoustic properties is the domain of acoustic phonetics. Today experimental acoustic phonetics, introduced by Jackobson, one of the founders of Prague School, into phonology, is considered as the base of phonological

[1.] Bamilike is a group of languages which is spoken by the Bamilike in the western grasslands of Cameroon.

analysis". Furthermore, Robins (1967, p. 222) asserts that "in phonetics and phonology, distinctive feature analysis made striking advances in alliance with instrumental and acoustic studies of speech transmission. This development has been particularly early in his career decided that more light would be shed on some phonological questions by considering the distinctive features composing phonemes from the acoustic and from the hearer's point of view rather than from the articulatory or the speaker's position".

Crystal (2003, p. 211) defines graveness as follows: "graveness is one of the features of sound set up by Jackobson and Halle to handle variations in place of articulation. Grave sounds are defined as those involving a peripheral articulation in the vocal tract and a concentration of acoustic energy in the lower frequencies. Back vowels, like labial and velar consonants are [+grave]". Consequently, both consonants and vowels differ in this acoustic property of graveness/acuteness, as in the following:

grave	acute
labial C,s	dental / alveolar C,s
velar C,s	palatal C,s
back V,s	front V,s

In Crystal (2003, p. 9) acute sounds are defined as "the sounds involving a medial articulation in the vocal tract, and a concentration of acoustic energy in the higher frequencies; examples of [+acute] sounds are front vowels, dental, alveolar and palatal consonants". It can be said that a grave vowel is changed into an acute one after an acute consonant. This is a kind of anticipatory assimilation. "In anticipatory assimilation, a given phonological segment affects its following phonological segment and assimilates it in one or more features. In this assimilation, the first phoneme remains fixed and makes the second one similar to itself" (Kord, 2000, p. 41). Haghshenas (1977, p.152) also maintains

that "in anticipatory assimilation, of the two adjacent consonants, the first one remains fixed and unchanged, and the second one is assimilated to the first". Therefore, for the data presented in 3-2 this rule can be stated, which is a rewrite of rule 5:

$$\begin{matrix} V \\ | \\ \begin{bmatrix} -high \\ +low \\ +grave \end{bmatrix} \end{matrix} \rightarrow \begin{bmatrix} -low \\ -grave \end{bmatrix} / \begin{matrix} C \\ | \\ [-grave] \end{matrix} \_\_ \# \; C$$

The main conclusion gained from the comparison of these sets of data is that in the Eghlidian dialect, the domain of the vowel [ə] is restricted to "phrase" or in other words, to the "units larger than words", since in individual words, the central vowel [ə] is not phonetically represented.

In the data in 3-2, as seen above, the final grave vowel is assimilated to its preceding acute consonant and changed into an acute vowel. In other words, in this set of data, there is an opposition in the phonetic representation of vowels following acute consonants and grave ones, since the underlying vowel /ɑ/ is produced as [o] in some words, and [ə] in some others. However, in the data presented in 4-1, there is not any such opposition, since in individual words /ɑ/ is changed into [o] after an oral or nasal consonant (whether grave or acute). For example, the word /fardɑ/ and /pɑ/ are produced with final grave vowel [o]. But these two words, in continuous speech, are produced with final acute and grave vowels [ə] and [o], respectively; therefore, it is clear that the opposition no longer exists between grave and acute final vowels in individual words. It can be said that this opposition is neutralized in individual words, in final position. Crystal (2003, p. 313) maintains that "neutralization happens when the distinction between two phonemes is lost in a particular environment, for

example, in English, the contrast between aspirated and unaspirated plosives is crucial, e.g., *tip v. dip*, but this contrast is lost, or neutralized, when the plosive is preceded by /s/, as in *stops*, and as a result, there are no pairs of words in the language of the type /skin/ *v* /*sgin/. The neutralization of a contrast in a particular location is referred to as positional neutralization". Therefore, it can be concluded that a final grave back vowel /ɑ/ is assimilated to its preceding acute consonant, but the opposition is neutralized in final position.

A final point to be made here is that according to the acoustic properties, palatal consonants are acute ones. Now, a question arises as to what kind of influences palatal consonants /c/ and /ɟ/, as examples of acute consonants, have on the final grave vowel; and whether these acute consonants cause the following low grave vowel to be changed into an acute vowel.

In Eghlidian dialect, [c] and [ɟ] are produced in final position of the word or before a front vowel. These consonants are produced as back allophones [k] and [g] after a back vowel. This is an example of assimilation. This assimilation can be shown through the following rule:

Rule 6:

$$\mathbf{C} \rightarrow [+back] \;/\; \underline{\quad}\, \mathrm{V}$$

$$\begin{bmatrix} -cont \\ -voice \\ -back \\ +high \end{bmatrix} \qquad\qquad [+back]$$

The hard-palatal consonants /c/ and /ɟ/ are not the input of the rule of acuteness assimilation, since these two acute consonants at first step, are assimilated to their following back vowel /ɑ/ and are changed to soft-palatal ones. These soft-palatal consonants are grave (since they are [+back]) and

cause the following low vowel /ɑ/ to be changed into the mid vowel [o]. It means that the rule 5 is not capable of applying in this context. These two rules, rule 6 and 5, have a bleeding relation. Roca and Johnson (1999, p. 550) state that "the situation where a rule removes material that would be necessary for the application of a subsequently ordered rule is referred to as bleeding order (the first rule bleeds the second)". In this particular context, palatalization rule bleeds the acuteness assimilation rule. This condition is seen in the derivation of the word [kako] meaning "brother".

Representation 7:

/# c**ɑ**c**ɑ** # /	UR
# k**ɑ**k**ɑ** #	Rule 6 (palatalization)
# k**ɑ**ko #	Rule 1 (vowel raising)
#.....#	Rrule 5 (acuteness assimilation)
[k**ɑ**ko]	PR

6. Conclusion

In Eghlidian dialect the final low grave vowel /ɑ/ is raised in the context of a [-glottal] consonant. As a result of this kind of raising, this low vowel is produced as the mid vowel [o]. In addition to this raising, the grave vowel /ɑ/ is assimilated to its preceding acute consonant and changed into [ə] which is an acute vowel. However, this opposition between graveness and acuteness is neutralized in individual words. Therefore, in individual words the vowel /ɑ/ is represented as [o] after non-glottal (oral and nasal) consonants and remains [ɑ] after glottal consonants, but in continuous speech, the vowel is assimilated to its preceding acute consonant and is represented as [ə]. In other words, the grave vowel /ɑ/ is produced as [ə] and [o] respectively after acute and grave consonants. In

addition, occurrence of the central vowel [ə] is restricted to the phrasal domain in this dialect.

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