RUSSIAN LOANWORD ADAPTATION IN PERSIAN; OPTIMAL APPROACH

Authors:

- Dr. Aliyeh Kord Zafaranlu Kambuziya,

  Faculty member of Linguistics department,

  Tarbiat Modares University,

  Tehran, Iran.

  E- mail: akord@modares.ac.ir & kambuziya@gmail.com

- Eftekhar Sadat Hashemi,

  PhD Student in Linguistics,

  Tarbiat Modares University,

  Tehran, Iran.

  E-mail:sadat.hashemi@modares.ac.ir
  &eftekharsadathashemi@gmail.com

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Abstract

In this paper we analyzed some of the phonological rules of Russian loanword adaptation in Persian, on the view of Optimal Theory (OT) (Prince & Smolensky, 1993/2004). It is the first study of phonological process on Russian loanwords adaptation in Persian. By gathering about 50 current Russian loanwords, we selected some of them to analyze. We found out that insertion, prothesis, no palatalized consonants, no noun ending central low short vowel [*a*] are the phonological processes occur on Russian loanwords in Persian.

Key words: loanword, Russian, Persian, phonology, OT.

Introduction

This paper is a study of a set of Russian loanword adaptation in Persian, with focus on phoneme substitution patterns for consonants and vowels and processes used in resolving foreign syllable structures which are illicit in Persian. The data serving as the basis for analysis are loans borrowed into Persian from the Slavic language, Russian. Loanwords are words from one language which are incorporated into another, the borrowing language, and in the process are usually adapted to fit the sound system of the borrowing language. It is observed that the original foreign pronunciation of borrowed words tends to undergo systematic adaptation or nativization. "Adaptation" is a term that describes the assimilation into the recipient language of loan word while preserving their original form and pronunciation as per the donor languages. The study analyzes a corpus of about 50 Russian loan words

gathering from Moein, Sokhan, and Amid - three Persian dictionaries- as well as Dictionary of European Loanwords in Persian[1]. We provide explicit accounts of several loanword adaptation phenomena in Persian in terms of an Optimality-Theoretic model in phonology. Insertion, prothesis, no palatalized consonants, no noun ending central low short vowel [*a*] are the phonological processes occur on Russian loanwords in Persian.

1- Review of literature

Loanword phonology has been studied extensively in recent years, and the process of loanword adaptation has been modeled in various ways, e.g. Silverman (1992), Paradis(1996), Kenstowicz (2001) and Sterade (2002) that say different things about the stages of adaptation and relative importance of factors such as the borrower `s proficiency in the source language and the veridicality of cross language speech perception. The Persian language`s loanword however, has not been very heavily studied, and the few sources that do comment on Persian phonology are generally quite old or brief and only one article focus on Russian loan word, Sadeghi(2004) discussed the origin of more than 90Russian loan words. He showed the history of the Russian loanwords borrowing times, and show when and why the loanwords entered Persian. He neither talked about the loanwords adaptation in Persian nor any other phonological process on Russian loanwords in Persian.

2-Russian and Persian sound system

Here we try to have a review on Russian and Persian sound systems.

2-1. Russian sound system; Vowels and Consonants

The phonological system of Russian is inherited from Common Slavonic, but underwent considerable modification in the early historical period, before being largely settled by about 1400.The language possesses five vowels, which are

[1] Zomorodiyan, Reza, (1984)

written with different letters depending on whether or not the preceding consonant is palatalized. It will be shown in chart (1);

	Front	**Central**	**Back**
Close	*i*	*(ɨ)*	*ʊ*
Mid	*e*	*(ə)*	*ɔ*
Open		*a*	

Chart (1) Russian Vowels[2]

The consonants typically come in plain vs. palatalized pairs, which are traditionally called *hard* and *soft.* (The *hard* consonants are often velarized, especially before back vowels, although in some dialects the velarization is limited to hard /l/). The standard language, based on the Moscow dialect, possesses heavy stress and moderate variation in pitch. Stressed vowels are somewhat lengthened, while unstressed vowels tend to be reduced to near-close vowels or an unclear schwa.

		Bilabial	**Labio-dental**	**Dental & Alveolar**	**Post-alveolar**	**Palatal**	**Velar**
Nasal	hard	/m/		/n/			
	soft	/m^{j}/		/n^{j}/			
Plosive	hard	/p/ /b/		/t/ /d/			/k/ /g/
	soft	/p^{j}/ /b^{j}/		/t^{j}/ /d^{j}/			/k^{j}/* [g^{j}]

[2] Webster on line dictionary

Affricate	hard			/ʦ/			
	soft				/ʨ/		
Fricative	hard		/f/ /v/	/s/ /z/	/ʂ/ /ʐ/		/x/
	soft		/fʲ/ /vʲ/	/sʲ/ /zʲ/	/ɕː/* /ʑː/*		[xʲ]
Trill	hard			/r/			
	soft			/rʲ/			
Approximant	hard			/l/			
	soft			/lʲ/		/j/	

Chart (2) Russian consonants[3]

Russian is notable for its distinction based on palatalization of most of the consonants. While /k/, /g/, /x/ do have palatalized allophones [k^j, g^j, x^j], only /k^j/ might be considered a phoneme, though it is marginal and generally not considered distinctive in the case of /t^j/ and /d^j/, the tongue is raised enough to produce slight frication (affricate sounds). These sounds: /t, d, ʦ, s, z, n and r^j/ are dental, that is pronounced with the tip of the tongue against the teeth rather than against the alveolar ridge. (Webster on line dictionary[4])

The sound [f] and [v] of Russian are usually endolabio-dental (Catford, 1992: 84). In addition the Russian *"sh"* is rather typically of apico- postalveolar type

[3] www.webster-online-dictionary
[4] www.webster-online-dictionary

(Catford, 1992: 89). In Russian all consonants are accompanied by a rising of the tongue body as a secondary articulator. Palatalization in the language is a distinctive feature (Kenstowicz, 1994: 41). The Russian syllable structure can be quite complex with both initial and final consonant clusters of up to 4 consecutive sounds. Using a formula with V standing for the nucleus (vowel) and C for each consonant, the structure can be described as follows: (C)(C)(C)(C)V(C)(C)(C)(C) Clusters of four consonants are not very common, however, especially within a morpheme.

2-2. Persian sound system; vowels and consonants

Iranian Persian has six vowels and twenty-three consonants. Persian vowels divided into two natural classes; vowels [a, e, o] with the feature of [- long] and vowels [i, u, A] which are [+ long].There is no diphtongue vowel in morpheme boundary Iranian Persian(kambuziya, et al, 2010). Vowels IPA symbols are shown in chart (3):

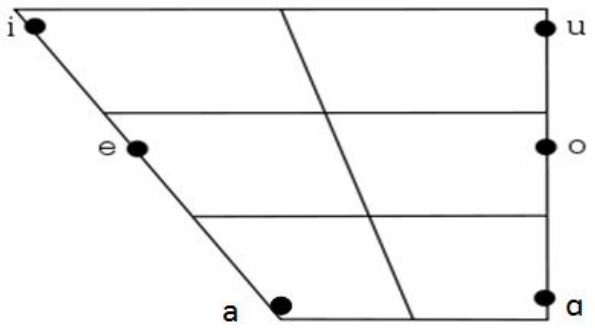

Chart (3) Persian Vowels

The Persian consonants IPA symbols and their place and manner of articulation is available in chart (4).

	Bilabial	Labio-dental	Dental	Alveolar	Palate-alveolar	Palatal	Velar	Uvular	glottal
Plosives	*p* *b*		*t* *d*			*c* ɟ		ɢ	ʔ
Nasals	*m*			*n*					
Fricatives		*f* *v*		*s* *z*	ʃ ʒ			χ	*h*
Affricates					*tʃ* *dʒ*				
Trill				*r*					
Approximant						*j*			
Lateral approximant				*l*					

Chart (4) Persian consonants [5]

As the chart shows there is no second articulation consonant in Iranian Persian.

Syllables in Persian may be structured as (C) V (C) (C) in underlying representation and CV (C) (C) in phonetic representation (Kambuziya, 2006). Onset consonant cluster is illicit in standard Iranian Persian.

3. Data Analysis

Different phonological processes in order to Russian loanword adaptation are as following;

3-1.Vowel Prothesis & Vowel Insertion (Epenthesis)

When borrowing words from Russian, Persians are faced with, a number of sounds and sound combinations which are not present in their language. Persian speakers must make the choice to either delete or adapt illicit consonants and vowels, and either insert or substitute vowels or delete consonants to repair phonotactical violations. At the level of the syllable, we find that epenthesis and prothesis into clusters is more frequent repair.

[5] Kambuziya 2006: 116

Persian speakers face a problem concerning the Russian base: while Russian allows for complex onsets consisting of a fricative and a plosive such as [st], Persian has no complex onsets of this type. Instead, potential complex onsets are resolved through vowel insertion. In the following example, the first consonant moves to coda of the first syllable, and a glottal stop [ʔ] appear in onset of the first syllable and the second consonant move to onset of the second syllable.

3-1-1. Vowel prothesis

Persian listeners perceive the Russian word [st*a*k*a*n], (English: cup) as /ʔes.te.k*a*n /. We can model the process in OT as follow:

st*a*k*a*n	*COMPLEX ONS	*Fric.dent. Plossive	*short [ɑ]	*#Insertion ST	*ONSET	*DEP IO
a) st*a*k*a*n	*i	*i	*i			
b) set*a*k*a*n			*i	*i		
c) Setek*a*n				*i		
d) estek*a*n					*i	
e) ☞ʔes.te.k*a*n						*i

Tablue (1)

The tablue indicates the optimal output candidate which it`s input violates with the constraint of Dep IO. Since syllables in Persian must have onset, COMPLEX ONS is prior to DEP-IO. So the candidate (e) is the optimal out put in the process. Candidate (a) violates two prior constraints; complex onset which is not permitted in Persian phonatactics, and fricative- dental plosive since sequence of a fricative consonant followed by a dental plosive consonant in the onset of syllable is illicit in Persian. Candidate (b) violates the two constraints in Persian. Short vowel [ɑ] is illicit in Persian since There is no short /ɑ/ in the language, unless in the context vowel followed by nasal consonant [n] in a tautosyllabic, as it remains in the last syllable of the word [

kɑ̆n] (Khanlari 1995:146). Thus the syllable [tɑ̆] shifts to [te] in order to harmonized with the first front mid vowel [e] epenthesized.[6]

3-1-2. Vowel insertion

Another problem of the Persian is shown in data (1) when it faces with Russian base words in the complex onset.

Russian	Persian	English meaning
Brezent	berezent	canvas
tr*a*mv*a*j	ter*a*mv*a*	tramway
ʃlang	ʃelang	hose
Xleb	xelab	bread
kl^{j}oʃ	keloʃ	a kind of skirt
ʃk*a*f	ʔeʃk*a*f[7]/ ʃek*a*f	gap

Data (1)[8]

Persian breaks the onset consonant cluster and inserts a front mid vowel, to nativize the syllabification. The tablue (2) shows the process;

/ʃlang/	*COMPLEX ONS	*prosthesis #ʃl	DEP IO
a) ʃlang	*i		
b) eʃlang		*i	
c) ☞ ʃelang			*

Tablue (2)

Although faithful constrain, DEP IO, is violated by vowel insertion, the tablue shows onset consonant cluster is one of the marked constraint in Persian and the marked constraint is prior to DEP IO. Therefore the optimal candidate is (c).The

[6] Among the studied loanwords, we only have one example for the phonological process.
[7] The word is perceived and produced in two ways, the first in standard Persian and second one in some Persian dialects.
[8] Sadeghi 2005

second constraint (*prosthesis #ʃl) indicates that prothesis a vowel in cluster of #ʃl in order to break the onset consonants cluster is forbidden in Persian(jam,2007: 172) .

3-2. No Palatalized consonant

Russian is a language with a whole series of palatalized consonants contrasting with plain or non palatalized ones. Secondary articulations are normally at about the rank of approximant. Palatalization consists in raising the anterodorsum of the tongue towards the hard palate (Catford, 1992: 105-108). Silverman (2009: 63) defines it as so, front **resonance** caused by raising the **front** of the tongue. In Russian essentially all consonants are accompanied by the raising of the tongue body as a secondary articulator. If it is [-back], the consonant is palatalized. Palatalization and velarization freely combine with labials and most dentals in Russian (Kenstowicz: 1994:41-42). According to what we mentioned so far consonants in Russian is divided into two groups; plain and palatalized. Producing the palatalized consonants is not contrastive in Persian. Persian speakers produce such consonants in plain form. The tablue (4) will show the optimal candidate.

/ot^{j}u/[9]	*palatalized consonant	ONSET	DEP IO
a) ot^{j}u	*i	*i	
b) ot^{j}		*i	
c) out		*i	
d) ☞ ʔotu			*

Tablue (4)

Candidate (a) would be faithful to the Russian base. But it violates the high ranked constraint No palatalized consonants and hence is ruled out. Candidate (b) repairs an offending palatalized through deletion the palatal segment, but

[9] iron

violates ONSET, marked constraint banning no ONSET. Also candidate (c) violates the two marked constrains, ONSET and NO Cluster glide. Finally, the winning candidate (a), avoiding palatalized consonants and have observed ONSET and NO Cluster –glide through deletion palatalized consonant and insertion a glottal stop [ʔ] in onset, only violates lowest ranked DEP and thus turns out to be the winner.

Russian	Persian	English meaning
b*a*n^{j}*a*	bine	dressing-room in a bath- house
kl^{j}o*ʃ*	kelo*ʃ*	a kind of skirt
*ʃ*in^{j}el	*ʃ*enel	mantle

Data (2)[10]

Generally, findings from various languages show that the output of loanword processes is a native form that demonstrates minimal changes from its foreign origin. On the segmental level, the principle of minimal modification functions through phoneme substitution, by which foreign sounds are replaced by their closest match available in the native inventory (Hock and Joseph, 1996). It is worthwhile mentioning that all the palatalized Russian phonemes perceive d and produced in plain form by Persian speakers.

3-3. No noun ending central low vowel [*a*]

Let us first deal with those Russian words that end in a back low vowel [*a*].Since plural morpheme in Persian is the suffix [-h*a*] and its allomorph in spoken form is [*a*], Persian speakers use the suffix at the end of the words to transfer the plural form of the nouns, Therefore, appearance of the central low vowel [*a*] at the end of any nouns is illicit in Persian even though there are words such as; /min**ɑ**/(female proper noun) and /sahr**ɑ**/(desert) Final open syllables in Persian substitute short central low vowel [ɑ] ,and front low

[10] Zomorodiyan 1984

vowel[a] with [e] in modern Persian. Moreover, the only phonological context for short vowel [ɑ]is when it is followed by nasal consonant [n] in a tautosyllabic context. Thus, in some cases the vowel deleted and in some other shift to front mid vowel [e]. The data in (3) illustrate this phenomenon.

Russian	Persian	English meaning
pots^{j}*a*	Pors	portion
k*a*lb*a*s*a*	k*a*lb*a*s	salami
vitrin*a*	Vitrin	shop window
kork*a*	Kork	knitting wool
lent*a*	Lent	Strip
f*a*brik*a*	f*a*brik	origin
v*a*ks*a*	v*a*ks	wax

Data (3)[11]

/f*a*brik*a*/	* noun final [*a*]	DEP-IO
a) f*a*brik*a*	*i	
b) ☞ f*a*brik		*

Tablue (5)

The optimal candidate is /f*a*brik/ since it only violates the non- prior faithful constrain, DEP-IO.

However, there are also some Russian-based words that have resisted deletion of the final vowel [*a*] are not available options, as illustrated in (4), where the below cases indicate that these forms are unattested, this is a systematic gap. The loanwords ending in [*a*] deleted the central low vowel by Persian speakers and inserted front mid vowel[e] instead.

[11] Sadeghi 2005

/boʃk*a*/	*NO nounfinall[*a*]	MAX-IO
a) boʃk*a*	*i	
b) ☞ boʃke		*

Tablue (6)

The central short vowel omission occurred and a front mid vowel[e] is inserted to avoid having a word ending in any short low vowel [*ă*], [a]. According to the diachronic study all words ending in [a]in Old or Middle Persian change to the mid vowel [e] in Modern Persian, (sadeghi,1978:131-132) only two words; [na] means "no" and [va] means "and" end in low vowel [a]. Moreover, there is another reason for the phonological process is that make the syllable CVC.CV. The cluster of a palatal fricative [ʃ] in final position is not preferable in Persian. Below, there is a list of loanword having the same behavior with the back low vowel in final position of the words.

Russian	Persian	English meaning
boʃk*a*	boʃke	barrel/cask
b*a*nk*a*	b*a*nke	jar
tsotk*a*	tʃo(r)tke	ancient calculator
b*a*n^{j}*a*	bine	dressing-room in bath-house

Data (4)[12]

It has frequently been observed that adaptation involves native phonological *and* phonetic similarity between loan and native segments (Silverman 1992, Kenstowicz 2001, Broselow 2003, Yip 2006) Persian language tends to favor a rather simplex CV or CVC syllable structure.

3-4. **Russian low central vowel [*ă*] & [*a*] vs. Persian vowel [a] & [*a*]**

[12] Zomoridiyan 1984

Since in Persian sound system there are a back low long vowel [*a*] and also one front mid short vowel [a] all the Russian words having central low short vowel [*ă*] in non-final position substitute by the front mid Persian vowel [a] and wherever long central Russian vowel [*a*] appears the back low Persian vowel [*a*] is used. Since in Persian there is not lengthening vowel. Data(5) shows the examples and Tablue (7) illustrates the process:

Russian	Persian	English meaning
k*ă*z*a*k	Gazz*a*G	cossack
s*ă*m*a*v*a*r	sam*a*var	samovar
ʃl*ă*ng	ʃelang	hose

Data (5)[13]

Tablue (7) shows the optimal candidate of the process;

[ʃlă̆ng]	*complex ons	*short vowel[*ă̆*]	DEP-IO
a) ʃl*ă*ng	*i	*i	
b) ʃel*ă*ng		*i	*
c) ☞ʃelang			*

Tablue (7)

Since Candidate (c) only violates the Dep- IO constrain, it is the optimal one.

3-5.Homorganic sound sequences

The sound sequence of [ts] in Russian word [tsɑr] by catford is consider as a affricative sound; since there is no morpheme boundary ,both [t] and [s] belonging to the same word and functioning in the structure of (Russian) language as a single affricate unit(Catford,1992:113). Silverman called affricatives as delayed released consonants and defined as the parting of the articulators relatively slowly following a stop causing a short phase of local audible friction(2009;225).The optimal candidate of the word is as follow;

[13] Zomorodiyan 1984

/tsɑr/	*affricate [ts]	*PROTHESIS [ts]	* voiceless between two vowels	Mixed Persian word [tʃar]	DEp-IO
a) tsɑr	*i				
b) et.sɑr		*i			
c) tesɑr			*i		
d) tʃɑr				*	
e) ☞ tezɑr					*

The tabloue (8)

The tabloue (8) shows Onset consonant cluster, prothesis [ts/tz] and affricative [ts] is the marked constraint in Persian. All of the constraints are prior to DEP IO. Therefore the optimal candidate is (e). As in Persian affricative [ts] is illicit and there is affricate sound of [tʃ] instead, the replacement is not acceptable since it `d be mixed with Persian colloquial word [tʃahɑr => tʃɑr], (means "four"). Thus Persian speakers inevitably hear and produce the loan word as the candidate (e). Even though the candidate (c) does not violate the first three constrains, it violates one of the phonological rule; that is any voiceless consonant will be shift to voiced one if comes in between two vowels context. Thus the candidate (e) is the optimal one.

4. **Conclusion**

Whatever so far presented and discussed in the paper leads us to conclude that loan word adaptation in Persian facing the words origin in Russian on the basis of Persian syllabification and its constraint on onset consonant cluster can be performed by vowel insertion, vowel prosthesis. The preferable vowel inserted or prothesized in order to break the onset consonant cluster will be one of the short vowels of [e, o]. As no second articulation is permitted in Persian all the Russian palatalized loanwords in Persian perceive and produce in plain forms. Since existing of final vowel [*a*] at the end of nouns overlap with the allophone

of plural suffix [h*a*] – producing as [*a*] in colloquial Persian- thus, no noun ending central low short vowel [*a*] is permitted in Russian loanword in Persian. Russian Affricatives [ts] and [dz] substitute by [ʧ] and [ʤ] in Persian. If the substitutions caused to produce words mixing with already existing Persian words, vowel prosthesis or insertion play a role in order to change the compound consonants to simple ones.

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