Loanword Adaptation in the Cretan Dialect

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The study examines the phonological adaptation of Turkish loanwords in the dialect of west Crete, i.e. how these loanwords are repaired according to the Greek phonological system and how they are incorporated in the native vocabulary of the dialect. It is shown that the CC- sequences from the source language (Turkish), that are ill-formed according the phonotactics of the recipient language (Dialect) are repaired minimally via epenthesis and the segmental information contained in the loanwords is preserved. The epenthetic vowel bears the feature [+high], but it is unspecified for the feature [±back]. It receives its [±back] value as a result of vowel harmony, harmonizing with the [±back] value of the following stressed vowel, i.e. the epenthetic vowel is realized as [i] or [u]. This is a dialect-specific vowel harmony pattern (stress dependent backness harmony). The harmony is blocked if between the epenthetic and the stressed vowel intervenes a consonant bearing the same feature for backness as the stressed vowel.

Keywords: Cretan dialect, loanword adaptation, vowel harmony.

1. Introduction

The present study examines the adaptation of loanwords from Turkish in the vocabulary of the (west) Cretan dialect. The corpus of loanwords is based on data from informants, as well as on data from Kondosopoulos (1969), Ksanthinakis (2002) and Pagalos (1955). We will show that often, loanwords enter the Cretan dialect with structures (i.e. segments or sequences) that are *ill-formed* -according the phonological system or the phonotactics of the dialect- therefore they have to be repaired, e.g. the round front segments [ö], [ü] or the CC-sequences [tk], [tm], [lk], [mk] etc. from the source language (Turkish). The questions that arise are the following: How are these loanwords incorporated in the native vocabulary? Are the repairs guided only by constraints from the Greek phonological system or the speakers still respect constraints from the source grammar?

We will show that the ill-formed structures are repaired minimally by the constraints of Greek. When a repair must be made, then it will be chosen for

'substitution' a sound that most closely resembles the original due to *auditory salience and similarity* (cf. Steriade 2001, Kenstowicz, 2003).

The front rounded vowels [ö] and [ü] from Turkish realize in the Cretan dialect only their [+round] value i.e. the feature [-back] is lost, because the dialect does not allow any [-back, +round] vowels in the native phonological system. The CC-sequences [tk], [tm], [lk], [mk] etc. from the source language are repaired minimally via epenthesis and the segmental information contained in the loanwords is preserved, a result of the Preservation Principle (cf. Paradis & LaCharité, 1997). As an epenthetic vowel is chosen a vowel specified for the feature [+high], but unspecified for the feature [±back] (as in the source grammar). It receives its [±back] value as a result of vowel harmony, harmonizing with the [±back] value of the following stressed vowel, i.e. the epenthetic vowel is realized as [i] or [u]. This kind of harmony is a phonologically driven dialect-specific pattern (stress dependent backness harmony). The harmony is blocked if between the epenthetic and the stressed vowel intervenes a consonant bearing the same feature for backness as the stressed vowel.

The paper is organized as follows: In §2 we will sketch the syllabic structure and vowel system of the Cretan Dialect. In §3 we will briefly present the vowel system and harmony principles of Turkish. In §4 we will offer an analysis of the loanword adaptation in the dialect of West Crete and we will conclude in §5.

2. Cretan Dialect: Brief presentation of the syllabic structure and the vowel system

In this section we sketch the possible Onset types and the Coda condition for the dialect of west Crete (WC) (see Kappa, 2001, for a detailed analysis)

1) *Single Onsets:* Any consonant may occur syllable-initially as a single onset.

2) *2-member Onsets*: Onsets consisting of [Obstruent + Nasal] or [Obstruent + Liquid] may be realised in the dialect in syllable-initial position. The homorganic sequences do not surface in the dialect, i.e. *[pm], *[tl], *[tn], *[sl], *[sr] etc. (OCP_{PLACE}.)

Clusters consisting of [Obstruent + Obstruent] also surface:

- Fricative + Stop [ft, xt, fk, st, sk,sf]
- Fricative + Fricative [θX, fX, xs]
- Stop + Fricative [pX], but *[tX, kX]

3) *3-member Onsets*:Clusters consisting of [Fricative + Stop + Nasal] or [Fricative + Stop + Liquid] surface in onset position. The clusters [xtr, xpl, ftr, stm, skn, skr] occur word- medial, and the clusters [skn, skr] word-initial.

Clusters of [Fricative + Fricative + Fricative] occur also:

[fθX],	[sθX]:
a**fθ**Xa (ears),	ano**sθ**Xa (tastlessness)

Clusters of [Stop + Fricative + Fricative] occur also

[psX]:	[ksX]:
ani**ps**Xa (nephews)	**ks**Xa su (do as you please !)

4) *4-member Onsets*: The dialect does not allow onsets consisting of 4 members:
[-fstr] → [-∅str], [-fspl] → [-∅spl]

Modern Greek	WC Dialect	Gloss
[**afstr**ia]	[**astr**ia]	(Austria)

5) *Codas*
The WC dialect shows preference for open syllables. Nasals are not permitted in Coda position, either syllable-final or word-final. Syllable-final are deleted, word-final are either deleted or occurs epenthesis of [e] (see examples in (7)).
The lateral [l] is often replaced by [r] in coda position. [s] occurs word-final as morphological marker (but sometimes is [s] deleted, exhibiting the tendency of the dialect for open syllables).

(6) Coda Condition: *C $]_{\sigma}$ (Kappa, 2001)
Nasal, Lateral
Obstruents

(7) Deletion of [n], or **CV** syllable (via epenthesis)

	Modern Greek	WC Dialect	Gloss
• word final:	kaTíko**n**	**[**kaTíko]	(duty),
	tó**n**	[tó**ne]**	(Art. Gen.PL)
• syllable final:	**án.** Tos	[á. Tos]	(flower)
• [r] occurs syllable-final	**el.** píΔa	[**er.** píΔa]	(hope)

• [s]: word-final as part of the morphological marker ([s] is sometimes deleted).

Supporting evidence for the operation of Coda-Condition are the loanwords from Turkish, which are incorporated in the Cretan vocabulary. The examples in

(8) show that if an obstruent, lateral or nasal occurs in Coda position, then the dialect repairs it via epenthesis of the vowels [i] or [u] and an open syllable surfaces (for a detailed discussion, see §4)

(8)	Turkish	Adapted Loanword	Gloss
	damlás	damulás	stroke/apoplexy
	halk	halikútis	frowzy
	katmér	katiméri	a species of flower

(9) Minimal specification for Greek vowels

	i	e	a	o	u
high	+				+
low			+		
back				+	+

10) The [±high, +back] vowels are underspecified for Roundness, i.e. they receive their [+round] value by a redundancy rule.

1) [+low]	⇒	[-high]	[a]
2) [+high]	⇒	[-low]	[i, u]
3) [-back]	⇒	[-low]	[i, e]
4) [+back, -low]	⇒	[+round]	[u, o]
5) [-back]	⇒	[-round]	[i e]
6) [-back]	⇒	[-round, -low]	[i,e] combination of rules (3), (5)
7) [+low]	⇒	[+back, -round]	[a]

(11) Epenthetic vowel in Standard Greek:

- The default epenthetic vowel is /e/, i.e. the vowel to be totally unspecified for properties other than vocalicity (Drachman, & Malikouti-Drachman, 1988).

(12) Epenthetic vowels in the native vocabulary of the Cretan dialect:

- [e] and [a] are the epenthetic vowels in the native vocabulary ([a] occurs in the vast majority of cases in the dialect of East Crete, cf. Kondosopoulos, 1969).

3. Turkish: Brief presentation of the vowel system and harmony principles

The vowel system in Turkish is completely symmetric in that every vowel has a counterpart with the opposite backness or roundness specification. Even though phonetically, the low vowels are not all of the same height, the system is assumed to have only a twofold height distinction by most authors. In (1) we posit the feature [-high] instead of the feature [+low], because in the Turkish phonological system the feature [±low] is entirely redundant, as one of its values [-low], does not appear to be used at all.

(1)

	FRONT	BACK
+high, -round	i	ɯ
+high, +round	y (ü)	u
-high, -round	e	ɑ (a)
-high, +round	O (ö)	o

(i, e, a, o, u = unmarked vowels)
(ü, ö, ɯ = marked vowels)

(2) Vowel Harmony in Turkish

In the following paragraph we posit the generalizations for the phenomenon of vowel harmony in Turkish. These generalizations are based on the behaviour of vowels in the suffixes (from Clements & Sezer, 1982).

- The Turkish harmony is root controlled
- All vowels in the word agree with respect to Backness (as in 2a)
- Roundness harmony is restricted in that it is fully operative only among high vowels[1] (as in 2b).

(2a) Backness harmony

V C_0V (and mirror image)

α back

(2b) Roundness harmony

+high

V C_0V (and mirror image)

α round

(3) Domain of harmony

The harmony affects all affixes, but also postclitics, which are outside the domain of stress assignment. Vowel harmony refers not to any prosodic domain (Kabak & Vogel, 2001). *'Harmony is not restricted to a particular domain but rather all vowels agree with the vowel to their left apart from vowels which are root-initial'* (Krämer, 2003:130)

(4) Disharmony (cf. Clements & Sezer, 1982; Kirchner, 1993).)

- The lexical stem itself is not governed by the harmony principles in (2).
- Any of the vowels from the unmarked set [i, e, a, o, u] may co-occur within a stem, i.e. vowels from two harmonic classes, e.g. [a...i], [o...i], [i...u] etc. may be combined within the lexical stems/roots
- The set of marked vowels [ü, ö, ∝] may not freely appear within the lexical stems/roots; they appear only if they are 'harmonic' with respect to the backness harmony principle.

(5) Epenthetic vowels in Turkish

- The epenthetic vowels are lexically marked as [+high] and they receive rounding and backness from adjacent vowels according to the harmony principles (see above in 2).

4. Loanword adaptation in the dialect of West Crete

The analysis of loanword adaptation will provided along the lines of the constraint-based framework of Optimality Theory (Smolensky, 1993; Prince & Smolensky, 1993; McCarthy & Prince, 1995 'Correspondence Theory'), which give us the tools for a principled and formal account of the markedness relations observed in the data.

In the case of (west) Cretan dialect, there are quite a lot of loanwords adapted from Turkish. These loanwords are repaired and incorporated in the native vocabulary. In the example in (1) the Turkish front rounded vowel [ü] realizes in the Cretan dialect only its [+round] value, namely the feature [-back] (or [+front]) is lost, because the dialect does not allow any *[-back, +round] vowels in the native phonological system. This restriction can be expressed with a conjoined constraint against such vowels (as in 2)

(1)	Turkish	west Cretan dialect	Gloss
	m**ü**sterí	m**u**sterís	customer

(2) LOCAL CONJUNCTION: two simple constraints (in our case *[-back] and *[+round]) are conjoined as a single composite constraint $[C_1 \& C_2]_\delta$ which is violated if and only if both of its components are violated within some domain δ (domain=segment, morpheme, etc.). For a violation of $[C_1 \& C_2]_\delta$ to occur, both separate violations must arise within a single domain (Smolensky, 1993).

A conjoined constraint does not replace its components, but it is separately ranked. It is generally assumed that a conjoined constraint is universally ranked above the component constraints, as in (3). The conjoined constraint is undominated in the dialect and the domain is the segment.

(3) Universal ranking schema: $[C_1 \& C_2]_\delta >> C_1, C_2$

In the tableaux in (4), if the lower constraints *[-back] and *[+round] are unranked with respect to one another, then both candidates (b, c) are optimal outputs, i.e. possible adaptations.

(4) $[*[-back] \& *[+round]]_{segment} >> *[-back], *[+round]$

/ü/	[*[-back]&*[+round]]segment	*[-back]	*[+round]
a. ü	*!		
b. ☞ i		*!	
c. ☞ u			*

In the tableaux in (5), if the lower constraints *[-back] and *[+round] are ranked with respect to one another, and *[-back] dominates *[+round], then candidate (c) is the optimal output.

(5) $[*[-back] \& *[+round]_{segment} >> *[-back] >> *[+round]$

/ü/	[*[-back]&*[+round]]segment	*[-back]	*[+round]
a. ü	*!		
b. i		*!	
c. ☞ u			*

In the dialect of west Crete vowel epenthesis occurs in order to repair ill-formed CC medial sequences, which are unsyllabifiable within the phonology of the dialect, that is, these CC medial sequences cannot form either a well-formed tautosyllabic onset cluster or they are not permitted as a Coda-Onset sequence (medial codas are in generally avoided). In (6), an epenthetic high vowel [i] or [u] is realized. Both epenthetic vowels are inserted in word internal position, in

order to create an open syllable, because nasal and stops are not allowed as medial codas (Kappa, 2001).

(6)	Turkish	West Cretan dialect	Gloss
	katmér	kati**m**éri	a species of flower
	düsmán	dusu**m**ánis	enemy
	kapatmá	kapatu**m**á	mistress
	damlá	damu**l**ás	stroke/apoplexy
	yumrúk	yumu**r**úki	tax/fine

Epenthesis is triggered by a high ranking constraint of Coda-Condition. Epenthesis also violates the anti-epenthesis DEP-IO constraint

(7) CODA-CONDITION: No laterals, nasals and obstruents as Codas
(8) DEP-IO: Output segments must have input correspondents (no epenthesis)
(9) CODA-COND >> DEP-IO

Epenthesis makes the lefthand consonant in the medial CC sequence in (10) to syllabify as an onset, rather as a coda. As an onset, this consonant can maintain its place features without violating the CODA-condition, while at the same time satisfying Ident-IO(Place) ('Correspondent Input-Output segments have identical values for the [Place] feature'). These benefits come at a cost: a violation of the anti-epenthesis DEP-IO (11).

(10) ...CVCCV... → ...CV. CV . CV... EPENTHESIS

(11) CODA-COND, IDENT-IO(Place) >> DEP-IO

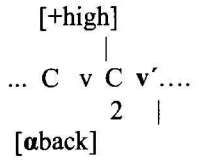
(12) Vowel epenthesis to resolve violation of the coda condition

kapatmá	CODA-COND	IDENT-IO(Place)	**Dep-IO**
a. kapat.má	*!		
b.☞kapa.**tu**.má			*

Assumptions for the quality of the epenthetic vowel in the adapted loanwords:

- It is unspecified for the feature [±back], it is only specified for the feature [+high] (as in the source language in section 3).
- It receives its [±back] value as a result of vowel–harmony (as in the source language).

- It is harmonizing with the [± back] value of the following stressed vowel, i.e. this is a stress-dependent[2] backness harmony. This kind of harmony constitutes a dialect-specific pattern (see 13).

(13)


The spreading of feature [± back] is due to AGREEMENT (cf. Baković, 2000; 'harmony is best analysed as an instance of Agreement'). Assimilation is thus driven by AGREE constraints (14).

(14) AGREE-F[±back]: A vowel must have the same specification for the feature [± back] with the following stressed vowel

In order for AGREE [± back] to systematically compel assimilation, it must dominate the faithfulness constraint on Input specifications for the stressed vowel, i.e. the constraint IDENT[± back] which demands that 'Correspondent segments have identical values for the [±back] feature' (15).

(15) AGREE-F[±back] >> IDENT-S[±back]

The epenthetic vowel lacks an input correspondent, therefore it can change its value in order to accommodate the phonotactics without violating the above identity constraint (cf. below, candidate outputs 16b, 16c).

(16)

kapatmá	CODA-COND	IDENT-IO(Place)	**Dep-**	**Agree-** **[+BACK**	IDENT-S [+back]
a. kapat.má	*!				
b. kapa.**ti**.má			*	*!	
c.☞kapa.**tu**.má			*		

(17) Blocking of harmony (Disharmony)

The harmony is blocked, if the intervening consonant is specified with the same value for the feature [back], as the (following) stressed vowel, i.e.disharmony occurs due to the action of OCP constraint ('No adjacent instances for particular features', e.g. [*αPlace, αPlace], cf. McCarthy 1986; Yip, 1988).

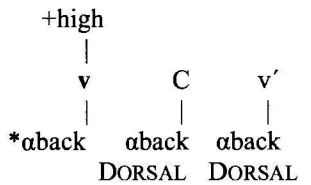
Turkish	**west Cretan dialect**	**Gloss**
matkáp	mat**i**kápi	drill
halk	hal**i**kútis	frowzy

i) If the [+back] stressed vowel is preceded by a dorsal ([+back]) consonant then the consonant acts as a barrier and the epenthetic high vowel takes the [-back] value.

kam . čí	ka . m**u** . čí	horsewhip

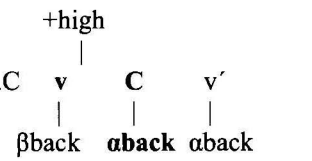
ii) If the [-back] stressed vowel is preceded by a coronal ([-back]) consonant, then the consonant acts as a barrier and the epenthetic high vowel takes the [+back] value.

(18) *...C



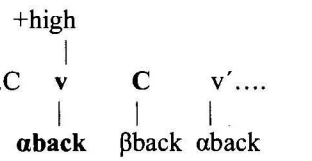
*[mat**u**kápi]
*[kam**i**čí]

(19)



[mat**i**kápi], [kam**u**čí]

(20)



[katiméri], [kapat**u**má]

- The [+back] harmony rule applies across nondorsal consonants
- The [-back] harmony rule applies across noncoronal consonants

The ranking of the markedness constraint *[+back] above the constraint AGREE-F[+back] rules out an output which would violate OCP (i.e. the output 21.b)

(21)

/matkáp/	CODA-COND	IDENT-IO (Place)	Dep-IO	*[+back]	Agree-F [+back]	IDENT-S [+back]
a. matkáp	**!					
b. ma.**tu**.ká.pi			**	*!		
c.☞ ma.**ti**.ká.pi			**		*	

5. Conclusion

It is shown that the loanwords from Turkish are repaired minimally by the constraints of the Cretan dialect. This produces the sounds adaptations in loanwords that we observe on the surface, e.g. the [+high, -back, +round] vowel [ü] of Turkish is realized in the Cretan dialect as [u]: [+high, +round], due to the undominated markedness constraint *[-back, +round] that generally excludes such marked vowels from the Greek phonological system.

The speaker will tend to preserve features whose absence would be most noticeable; and when a repair must be made, then it will be chosen for 'substitution' a sound that most closely resembles the original (auditory salience and similarity).

Our data support the view of Paradis & LaCharité (1997) that the segmental information contained in the loanwords is maximally preserved, as a result of the Preservation Principle and that 'the loanword input to phonology of the recipient language (L1) is immediately interpreted as a phonological representation of L1 and handled by its constraint set'.

The epenthetic vowel attested in the loanwords 'behaves' mostly as in Turkish: It is unspecified for the feature [±back], it is only specified for the feature [+high]. It receives its [±back] value as a result of vowel–harmony.
The Cretan data exhibit a dialect-specific pattern of vowel harmony, namely a phonologically driven *stress-dependent backness harmony*. The epenthetic vowel is harmonizing with the [±back] value of the following stressed vowel.

The harmony effect is blocked if the stressed vowel and the preceding consonant bear the same feature for backness.

Acknowledgements

I would like to thank Prof. P. Kiparsky, Prof. D. Theophanopoulou-Kontou and the audience at the 2nd International Conference of Modern Greek Dialects and Linguistic Theory (Mytilene, 2004) for usefull comments and discussion on this work.

6. Notes

[1] This restriction that 'Roundness harmony is fully operative only among high vowels' has been described by Kirchner (1993) as an effect of a Markedness constraint which prohibits roundness on non-high vowels, i.e. the constraint *[-high, +round]. Since the epenthetic vowel in Turkish is high and the language has only 2 levels in the height dimension, Krämer (2003) favours the assumption that the marked height is low, and the 'whole height distinction is encoded by the phonological feature [± low]', therefore he argues that the active Markedness constraint should be *[+low, +round] (*LoRo).

[2] One more type of harmony is the stress dependent harmony, e.g. in the spanish dialect Pasiego Montañes, *height harmony* is triggered by the stressed vowel in the word. All vowels within a word must be either high or mid. The low vowel is neutral (McCarthy, 1984:294 ff).

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8. Περίληψη

Στην παρούσα εργασία εξετάζουμε τη φωνολογική προσαρμογή των δανείων λέξεων από την Τουρκική στη διάλεκτο της δυτικής Κρήτης. Αυτές οι δάνειες λέξεις ενσωματώνονται στο λεξιλόγιο της διαλέκτου, αφού υποστούν, όταν χρειάζεται, ορισμένες φωνολογικές προσαρμογές, έτσι ώστε η φωνητική τους πραγμάτωση να συνάδει με τις φωνοτακτικές αρχές που διέπουν το φωνολογικό σύστημα της Ελληνικής, π.χ. τα φωνήεντα της Τουρκικής με τα Δ.Χ. [+πρόσθιο, +στρογγυλό] πραγματώνονται στην Κρητική διάλεκτο μόνο το Δ.Χ [+στρογγυλό], διότι το φωνολογικό σύστημα της διαλέκτου (και της Νέας Ελληνικής γενικότερα) δεν επιτρέπει φωνήεντα που φέρουν τα συνδυασμένα Δ.Χ. [+πρόσθιο, +στρογγυλό]. Στα δεδομένα παρατηρήσαμε, ότι όταν οι δάνειες λέξεις έχουν ακολουθίες συμφώνων που δεν είναι δυνατόν να συλλαβοποιηθούν σύμφωνα με το φωνοτακτικό σύστημα της Ελληνικής, τότε πραγματώνεται σε εσωτερική

θέση ένα επενθετικό φωνήεν προσδιορισμένο ως προς το Δ.Χ. [+υψηλό], κατά περίπτωση το [i] ή το [u]. Το ερώτημα που τίθεται σε αυτή τη μελέτη είναι το εξής: Τα επενθετικά φωνήεντα [i] και [u] που προσαρμόζουν φωνολογικά τις τούρκικες δάνειες λέξεις λαμβάνουν το Δ.Χ. [±οπίσθιο] ως απόρροια μιας φωνηεντικής αρμονίας ή λόγω του είδους των συμφώνων που τα περιβάλλουν; Η ανάλυση των δεδομένων δείχνει ότι το [+υψηλό] επενθετικό φωνήεν εναρμονίζεται ως προς το Δ.Χ. [±οπίσθιο] που φέρει το τονισμένο φωνήεν της επόμενης συλλαβής. Η αρμονία παρεμποδίζεται όταν ανάμεσα στο επενθετικό και στο ακόλουθο τονισμένο φωνήεν μεσολαβεί ένα σύμφωνο που είναι λεξικά προσδιορισμένο με την ίδια αξία ως προς το Δ.Χ. [οπίσθιο] που είναι προσδιορισμένο και το τονισμένο φωνήεν (εμφάνιση δυσαρμονίας).