Vowel harmony in contact-induced systems: the case of Asia Minor dialects of Greek*

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The Asia Minor dialects of Greek display two patterns of vowel assimilation that look superficially like the vowel harmony that is familiar from Turkish. In this paper, we discuss these patterns and show that they should not be identified as vowel harmony of the Turkic type. In particular, we argue that two disyllabic domains can be identified, one at the beginning of the word and one at the end. 'Harmony' within these two domains conforms to different principles. Initial-domain harmony is sonority-driven and it is attested in other Greek dialects of the southern zone as well. Final-domain harmony is not sonority-driven but features sensitivity to stress which is unattested in Turkish.

Key-words: harmony, vowel copying, harmonic span, positional markedness, license

1. Introduction

A number of dialects once spoken in Asia Minor present a harmony-like process that shares similarities with Turkic harmony. These dialects belong to the south-eastern dialectal zone of Greek which also includes the dialects of Dodecanese (Rhodes, Karpathos, Symi, etc.), Cyprus, among others. They developed, however, in isolation from the rest of the Greek-speaking world and, in that process, underwent the influence of Turkish. Social conditions in the villages of this vast geographical area must also be taken into consideration. Most of the villages had a mixed Greek, Armenian and Turkish population. The Turkish influence is more eminent in certain Cappadocian dialects[1] such as Ulaghatsh and Semenderé, because there the Turkish population was large and increasing. The economical and social ties between villages played an important role in determining the linguistic profile of each dialect. In this paper we explore how each dialect counterbalances two opposing forces: Greek, the mother tongue, and Turkish, the ambient language. These dialects virtually stopped being spoken in that area after the expatriation of the Greek population from Asia Minor at the beginning of the 1920s. Nowadays, they are almost extinct.

The Asia Minor dialects of Greek (henceforth AMG) display two patterns of vowel assimilation that look superficially like the vowel harmony which is familiar from Turkish. Consider the following examples:[2]

(1) *'harmony' in various Asia Minor dialects*

a.	ónom-a	ónama	'name' Sil, Ko33[3]
b.	kóskin-o	kóskuno	'sieve' Sil, Ko31
c.	/é-zes-a/	ézasa	'live-1SG.PAST' Far, An48:20
d.	evðomáð-a	ovdomája	'week' Ax, MK9
e.	miruðj-á	murudjá	'smell' Ax, MK111

It is not completely clear whether this 'harmony' was still a fully active phonological process at the moment these data were recorded, or whether it reflects a diachronic process which had applied at an earlier stage. We assume that, even if the latter is the case, this change of underlying forms still needs an explanation in terms of phonological theory. There is no doubt, however, that vowel harmony processes are not as widespread in Greek as they are in Turkish where vowels harmonize for backness and, if high, for roundness as well. Both harmony processes are exemplified in (2).

(2) *vowel harmony in Turkish*

	NOM.SG	GEN.SG	NOM.PL	GEN.PL	
a.	iʃ	iʃ-in	iʃ-ler	iʃ-ler-in	'name'
b.	ev	ev-in	ev-ler	ev-ler-in	'house'
c.	kɯz	kɯz-ɯn	kɯz-lar	kɯz-lar-ɯn	'girl'
d.	jol	jol-un	jol-lar	jol-lar-ɯn	'road'
e.	gyl	gyl-yn	gyl-ler	gyl-ler-in	'rose'
f.	gœl	gœl-yn	gœl-ler	gœl-ler-in	'lake'
g.	tas	tas-ɯn	tas-lar	tas-lar-ɯn	'pot'

At first sight, one may assume that the AMG forms in (1) have simply borrowed the Turkish process and adopted it to their otherwise Greek phonology. This is indeed the standard view in contact linguistics at least since the work of Thomason & Kaufman (1988) (but see Winford 2003 for an alternative view of the Asia Minor contact situation, and Karantzola & Theodoridou, this volume).

In this paper, we argue that the situation is not quite as simple as has generally been assumed. First, we show that these harmony-like patterns in AMG are very different from those attested in Turkish (Section 2). On the one hand, they seem to be extensions of processes commonly found in Southern Greek dialects, such as Karpathos, which are clearly distinct from the Turkish pattern of vowel harmony. On the other hand, they appear to have developed under the influence of the contact language since they display certain properties

of Turkic harmony (Section 3). Moreover, the AMG harmony has evolved into an intricate system of its own right with fascinating formal properties (Section 4). To explain, a foot-sized harmonic domain is constructed either at the beginning or at the end of the word depending on the position of the stressed vowel. The two domains, however, are shown to be subject to different requirements: the initial domain involves a sonority-based vowel-copying process according to the pattern of Karpathos and other Southern Greek dialects, whereas the final domain involves mainly spreading of roundedness and backness features according to the Turkic pattern (Section 5). This paper concludes with some hypotheses about the possible role of language contact in the development of the harmony-like processes in AMG (Section 6).

2. AMG and Turkish vowel harmony compared

There are some interesting differences between AMG and Turkish vowel harmony. First, a disyllabic harmonic domain is constructed either at the beginning or at the end of the word, as shown in (3) and (4). Second, in AMG, harmony does not always involve spreading of features; often, a whole vowel is copied, as shown in (4).

(3) *vowel harmony in word final position*

a.	ðáskal-os	ðáskolos	'teacher' Far, A48:20
	ánem-os	ánomos	'unlawful' Axo, MK9
	fáγo	fóγo	'eat-1SG.PRES' Ul, D65
b.	ónoma	ónama	'name' Sil, Ko33
	pandeleímon-as	pandeleímanas	'merciful' Sil, Ko151
c.	fílak-s-e	fílekse	'guard-3sg.PAST'Ax, MK188
	íp-e	épe	'say-3SG.PAST' Ul, Ke142
	/é-ðok-en/	éðeken	'give-3SG.PAST' Ul, D376
d.	/kóskino/	kóskuno	'sieve' Sil, Ko31

(4) *vowel harmony in word initial position*

a.	/meγaríz-o/	maγarízo	'mess up-1SG.PRES'Ax, MK8
	kateváz-i	kataváz	'lower-3SG.PRES'Ax, MK192
	sevast-í	savastí	'name' Ax, MK8
b.	meθópor-o	moχóporo	'fall' Ax, MK9
	ékso	ókso	'out' Ul, D366
	embrós	ombró	'in front' Ax, MK216
c.	evðomáð-a	ovdomája	'week' Ax, MK9
	fover-ó	fovoró	'frightening' Ax, MK9
d.	miruð-já	murudjá	'smell' Ax, MK111

		lizmon-ó	zolmonó	‘forget-1SG.PRES’ Ax, MK9
	e.	pipér-i	pepér	‘pepper’ Ax, MK116

In (3), the final vowel spreads its features to the preceding vowel regardless of sonority considerations, e.g. *ðáskolos* (3a) vs. *ónama* (3b). Consequently, the directionality of the process is systematically right-to-left. This is not the case in (4). Here, the process is clearly sonority-driven: the most sonorous vowel replaces the least sonorous one, regardless of whether it precedes or follows the trigger. Compare *kataváz* with *maɣarízo* (4a), *ovdomája* with *fovoró* (4c), and so on. More importantly, in word-final positions, the trigger spreads its [round] feature only when the preceding vowel is high, e.g. *kóskuno* (3d), pretty much in compliance with the Turkish pattern. In contrast, full copying of a round vowel to a neighboring vocalic position is witnessed only in word-initial domains, e.g. *murudjá*, *zolmonó* (4d).

Third, unlike Turkish harmony, the described process is stress-sensitive. More specifically, as shown in (5), stressed vowels are not triggers, unless the word is binary, e.g. /pu θá/ *paá* ‘that will’ Liv, An61:33. For instance, if domain-final vowel harmony applied, the expected outputs for /monax-ós/ in (5b) would have been **monoxós* instead of the attested *manaxós*.

(5)	a.	kerat-ás	tʃaratás	‘s.o. with horns’ Far, An48:20
		alep-ú	alapú	‘fox’ Liv, An61:33
	b.	monax-ós	manaxós	‘lonely’ Ax, MK8
		orfan-ós	arfanós	‘orphan’ Liv, An61:33
		perpat-ó	parpató	‘walk-1SG.PRES’Far, An48:20
		aðelf-ós	aðarfós	‘brother’ Liv, An61:33
	c.	elin-ik-ó	elenikó	‘Greek’ Far, An48:81
		kirek-í	kerekí	‘Sunday’ Ax, MK8

Finally, like Turkish harmony, AMG harmony is not sensitive to morphological structure since it takes place both within a stem (6a) and between a stem and a suffix (6b):

(6)	a.	tésera	tésara	‘four’ Far, An48:20
		ékso	ókso	‘out’ Ul, D366
		ónoma	ónama	‘name’ Sil, Ko33
	b.	petsét-a	petʃáta	‘napkin’ Sil, Ko185
		ánem-os	ánomos	‘wind’ Ax, MK9
		fílak-s-e	fílekse	‘guard-3SG.PAST’ Ax, MK188

3. Vowel copying in southern dialects: the case of Karpathos Greek

As argued in the previous section, the AMG harmony has a sonority-driven aspect which compares with a vowel copying pattern attested in various Greek dialects of the southern zone, e.g. Symi (Katsiki 1974), Rhodes (Papachristodoulou 1986), Cypriot (Newton 1972), and so on. The examples in (7) from Karpathos Greek (Minas 2002) illustrate a vowel copying process that takes place at the left edge of the word and according to which the less sonorous of two adjacent vowels assimilates to the most sonorous one.

(7) *initial vowel assimilation in Karpathos Greek* (Minas 2002: 56-60)

a.	orfan-ós	arfanós	'orphan'
	árotr-on	áratron	'plough'
	kalo-póð-i	kalapói	'shoehorn'
b.	elafr-ís	alafrís	'light'
	erγá-t-is	argátis	'worker'
c.	irakl-ís	araklís	'Hercules'
	ipako-í	apakoí	'obedience'
d.	velón-i	volóni	'needle'
	ékso	ókso	'outside'
e.	iγr-ós	oγrós	'wet'
	siróp-i	sorópi	'syrup'
f.	/stomúx-i/	stumúxi	'muzzle'
	skotúr-a	skutúra	'worry'
g.	ésθi-ma	éstema	'feeling'
	éksi	ékse	'six'
h.	kukíð-i	kukúi	'bullet'

It is clear from the above examples that, within a disyllabic domain, vowel copying conforms to the sonority hierarchy in (8). The same hierarchy is, in general, effective in the phonology of Karpathos Greek, since it also guides vowel deletion in hiatus contexts, as shown in (9).

(8) a > o, u > e > i[4]

(9) *vowel hiatus in Karpathos Greek* (Minas 2002: 62-67)

a.	/ta ómorfa/	[támorfa]	'the beautiful ones'
b.	/ðéka éksi/	[dekáksi]	'sixteen'
c.	/mesá íne/	[mesáne]	's/he is inside'
d.	/to éma/	[tóma]	'the blood'
e.	/me uranó/	[muranó]	'with sky'

Despite the similarities, there are differences between the vowel copying process of Karpathos and the vowel harmony of AMG. To begin with, unlike Karpathos Greek, AMG harmony does not *always* conform to the sonority hierarchy, especially when the harmonic domain is built at the end of the word. Compare the examples in (6a-h), e.g. *alafrís* 'light', with the ones in (3), e.g. *fílekse*. Moreover, vowel copying in Karpathos Greek can be triggered by a stressed vowel, if this happens to be the most sonorous one within the specified domain. Finally, vowel copying is restricted to the stem, (10a). It crosses morphological boundaries only when the stem is monosyllabic, (10b):

(10)	a.	ésθi-ma	éstema	'feeling'
		an-ésθi-t-os[5]	anéstetos	'unconscious'
	b.	élk-os	órkos	'oath'
		érγ-on	órgon	'work'
		iγr-ós	oγrós	'wet'

AMG harmony, however, is not subject to this restriction. It applies equally between a stem and a suffix (11a), within a suffix (11b) and within a stem (11c):

(11)	a.	petsét-a	petʃáta	'napkin' Sil, Ko185
		perðik-ó-θir-a	perðikóθara	'door for birds' Far, An48:20
	b.	erx-ómaste	erúmeste	'come-1PL.PRES'Ax, MK190
	c.	tésera	tésara	'four' Far, An48:20
		ékso	ókso	'out' Ul, D366

To summarize, domain-initial harmony in AMG resembles vowel copying exhibited by several dialectal varieties of Southern Greek: it is sonority-driven and confined to the left edge of the word. More importantly, it allows stressed vowels to be triggers. In the following section, we propose that the AMG harmony splits into two different processes that operate at different prosodic domains and, more importantly, abide by different conditions.

4. Two domains of harmony

The intricate pattern of AMG harmony can receive a straightforward explanation if we assume the existence of two different harmonic spans. More specifically, we propose that a harmonic span of two syllables can be constructed either at the end or at the beginning of the word. (See McCarthy 2004 for a proposal on the implementation of harmonic span and further references.) Different conditions, however, apply to these harmonic spans. To be precise, the span at the end of the word is more like Turkish vowel harmony in the sense that it involves mainly

spreading of the features [round] and [back]. Within this span stressed vowels are neither triggers nor undergoers unless harmony would fail to apply altogether. Examples like *foɣ́o* (St.Gr *fáɣo*) 'eat-1SG.PRES' (3a) suggest that, when the domain is binary, the stressed vowel must be included in the span.

In contrast, the span at the beginning of the word is characterized by a sonority-driven vowel copying process which is in line with the Karpathos pattern also exhibited by a range of Southern Greek dialects (e.g. Symi, Rhodes, Cypriot, etc.). In this span, stressed vowels can initiate and even undergo vowel-copying, e.g. *moxóporo* (< /meθóporo/) 'fall', *okso* (St.Gr *ékso*) 'out' (4b).

Since the span at the end of the word is more restricted, in case of a possible conflict, it takes precedence over the one at the beginning. Such cases are not hard to find. In two syllable-long words, for instance, the harmonic domains inevitably overlap. The words in (12) are crucial in this respect. Examples such as *foɣ́o* from underlying /fáɣo/ (12a) and *édeken* from underlying /éðoken/ (12b) demonstrate that final-domain harmony prevails.

(12) *harmonic domains*

a.	fáɣo	fóɣo	'eat-1SG.PRES' Ul, D65
b.	éðoken	édeken	'give-3SG.PAST' Ul, D376
c.	kal-ó-ɣer-os	kalóɣjoros	'monk' Ax, MK9

In longer words, harmony domains do not overlap. In this case, a harmonic span is formed at the end of the word, provided that there is a harmony-triggering vowel, namely a vowel from the set {a, o, e}, and the target vowel is not stressed, as shown in (13). Otherwise, the harmonic span is formed at the beginning of the word, as illustrated in (14).

(13)	a.	tésera	tésara	'four' Far, An48:20
	b.	ánem-os	ánomos	'wind' Ax, MK9
	c.	fílak-s-e	fílekse	'guard-3SG.PAST' Ax, MK188
(14)	a.	sevast-í	savastí	'name' Ax, MK8
	b.	kateváz-i	kataváz	'lower-3SG.PRES'Ax, MK192
	c.	meɣaríz-o	maɣarízo	'mess up-1SG.PRES'Ax, MK8

Stressed vowels heading a prosodic word should not be included in the binary harmonic domain (see the examples in (5)). Two conditions determine the behavior of stressed vowels, namely footing and headedness. Footing in Greek is trochaic (Revithiadou 1999). More specifically, a syllabic trochee is built at the right edge of the word whereas degenerate feet are allowed only under certain conditions. Let us assume that a word is stressed on the final syllable and that, in

parallel to the degenerate foot, a trochaic-shaped harmonic domain is also constructed at the right edge of this word, as shown in (15).

(15)
```
      ( *  . )      harmonic foot
        ( * )       metrical foot
    m o n a x ó s
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The AMG harmony facts, however, clearly suggest that a representation such as the one in (15) is not permitted because it leads to a mismatch between the head of the metrical foot and the head of the harmonic foot. (See Gordon 2005 for discussion on the hypothesis that different types of weight behavior within one language may also be due to different phonological dimensions of weight representation.)

Furthermore, stressed vowels are less resilient to changing their [round] and [back] features than unstressed ones. This entails, therefore, that they avoid placing themselves in the head of a harmonic foot and hence be targeted by harmony. In fact, such a foot is built only when the word runs the risk of not constructing a harmonic foot at all as in the case of *fóɣo* (St.Gr *fáɣo*) and *petʃáta* (St.Gr *petséta*). Only under this scenario, will a metrical foot match a harmonic foot, as show in (16).

(16)
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      (*  . )      harmonic foot
      (*  .)       metrical foot
    p e t ʃ é t a
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5. The analysis

In this section, we attempt a formalization of the chief insights presented in the previous section. We assume that a notion of a harmonic span, consisting of two syllables is required (Halle & Vergnaud 1978, Harris & Lindsey 1995, van der Hulst & van de Weijer 1995). In accordance with at least some of these authors, we also claim that these spans are congruent with metrical feet, more specifically, trochees (but see McCarthy 2004 for a different approach):

(17) a. (ovdo)maja initial domain
b. e(zasa) final domain

As we have seen, different principles apply to initial and final feet. Starting from initial domain spans, we call upon the notion of *positional markedness* (Kiparsky 1997, Zoll 1998, Smith 2004, and others). That is, certain markedness constraints hold only or more forcefully in certain prominent positions than in others. Prominence may be defined either in terms of stress, or in terms of absolute

position. Word-initial positions have undeniably been considered more prominent than others. We propose, therefore, the following positional markedness constraint to be in effect at the beginning of the word:

(18) HNUC/FIRSTFOOT: Syllable nuclei should be maximally sonorous within the first foot of the word.

One way to achieve maximal sonority for the nuclei of the first foot would be to simply upgrade all nuclei to the highest sonority value thus turning them into /a/. In this case, a word like *elinikó* would surface as **alanikó*, which is, nevertheless, unattested. The reason why this total lowering of all vowels does not happen is that the constraint in (18) interacts with the faithfulness constraint in (19) which militates against insertion of vocalic material:

(19) DEP-VFEAT: Do not insert (vocalic) features.

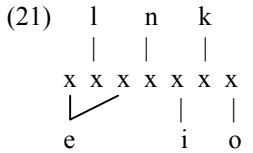
The tableau in (20) illustrates the effects of the competition. HNUC/FIRSTFOOT is responsible for unfaithful analyses of the input in candidates (20c) and (20d). Both violate the faithfulness constraint because the [back] feature is inserted in the second vocalic position in (20b) and in both vocalic positions in (20d). The choice between the remaining two candidates relies on the markedness constraint which opts for the most sonorous output permitted by DEP-VFEAT.

(20)

/elin-ik-o/	DEP-VFEAT	HNUC/FIRSTFOOT
a. elinikó		ei!
☞ b. elenikó		ee
c. elanikó	*!	e
d. alanikó	**!	

It is evident that, from a purely formal point of view, this part of the system displays none of the mechanisms of harmony. Therefore, word-initial spans should be considered as loci of vowel-copying procedures rather than domains of harmony in the Turkic sense. Both vowels within such as domain strive to be as sonorous as possible, without adding new material. Spreading of the more sonorous vowel is the best way to get this effect. The autosegmental representation of (20b) is provided in (21).

(21)



Turning now to the right-hand harmonic domain, we argue that in this case a different type of positional markedness constraint is active. This constraint is in conformity with proposals of Walker (to appear) for metaphony in Romance and, especially, Italian dialects. In these dialects, features seem to move to stressed (i.e. head) positions in the word. For instance, in the Ascrea dialect spoken in the Lazio region of Italy, post-tonic high vowels induce raising of a stressed mid vowel:

(22) *Ascrea: stress-targeted harmony*

a.	sórda	'deaf-FEM.SG'	súrdu	'deaf-MASC.SG'
b.	véʃte	'this-FEM.PL'	víʃti	'this-MASC.PL'

Notice that again this type of pattern is quite different from Turkic vowel harmony. To our knowledge, Turkish vowel harmony does not display any sensitivity to metrical structure. In order to analyze the above patterns, Walker proposes the following positional markedness constraint:

(23) LICENSE(F,S-Pos): Feature [F] is licensed by association to strong position S. Let:
i. *f* be an occurrence of feature [F] in an output O
optional restrictions: (a) *f* is limited to a specification that is perceptually difficult, (b) *f* belongs to a prosodically weak position, (c) *f* occurs in a perceptually difficult feature combination),
ii. *s* be a structural element (e.g. σ, μ, segment root) belonging to perceptually strong position S in O,
iii. and sδf mean that *s* dominates *f*.
Then, (∀f)(∃s)[sδf].

In other words, LICENSE(F, S-Pos) requires that a feature be affiliated with a perceptually strong position. In the case of AMG, the relevant features are [back] and [round] and the strong position is the head of the final harmonic foot. Thus:

(24) LICENSE([round, back], HeadHarmony): Features [round, back] are licensed by association to the head of a harmonic domain.

Because of the nature of this constraint, spreading will only go from a less prominent position to a more prominent one. This is the reason why forms such as the following are unattested:

(25) *m o n o̱ x ó s
spreading from a prominent (main stressed) position
[round]

This constraint crucially interacts with a faithfulness constraint that requires corresponding segments to have the same specification for roundness and backness:

(26) IDENT([round, back]): If an input segment A and an output segment B are in a correspondence relation, they should have the same specification for features [round, back].

The interaction between these two constraints results in the desired pattern. Candidate (27c) is excluded from the competition because the feature [round] spreads farther than the head of the harmonic foot causing unwanted violations of IDENT. Candidate (27a) shows no harmony and hence compels a fatal violation of LICENSE. Candidate (27b) is the absolute winner because it licenses roundness from the tail to the head of the harmonic foot without triggering unnecessary violations of faithfulness.

(27)

/anemos/	LICENSE	IDENT
a. ánemos	*!	
☞ b. ánomos		*
c. ónomos		**!

If we assume the ranking LICENSE » HNUC/FIRSTFOOT, we can also account for the fact that the domain at the end of the word takes precedence over the domain at the beginning of the word. It is more important to license [round] and/or [back] to the head of the word-final harmonic span than to copy a sonorous vowel in a word-initial harmonic span. However, the story is not complete since the special behavior of stressed vowels still needs to be accounted for.

Stressed vowels preserve their specification for [round] and [back] and hence are impervious to the harmonizing forces of LICENSE. This is due to the IDENT-V[round, back] which requires corresponding stressed vowels to have identical values for roundness and backness. Second, the MATCH constraint in (28) forces heads in the harmonic and the metrical domain to match, thus penalizing outputs with mismatched heads:

(28) MATCH: Heads in metrical and harmonic feet should coincide.

In AMG, the effects of (28) are overshadowed by IDENT-V[round, back], as evidenced by examples such as *maɣarízo* (< /meɣarízo/). Although here the formation of two harmonic spans is possible, i.e. *meɣa(rízo)* and *(meɣa)rízo*, only the latter option arises. This is because satisfaction of MATCH would lead to an output in which the featural specification of the stressed vowel would have

changed, an unwanted result due to high-ranking of IDENT-V[round,back]. Interestingly, the effects of MATCH emerge in disyllabic words, e.g. *fóɣo*, as well as in words where the alternative span contains vowels of equal sonority, e.g. *moxóporo* (< /meθóporo/), *petʃáta* (St.Gr *petséta*). The following tableaux illustrate the effects of the complete constraint ranking, namely: IDENT-V[rd/bk] » MATCH » LICENSE » HNUC/FIRSTFOOT.

(29)

T1 /meɣarizo/	IDENT-V [rd, bk]	MATCH	LICENSE	HNUC/FIRST FOOT
☞ a. (maɣa)rízo		*	*	
b. meɣa(rúzo)	*!			*
T2 /monaxos/				
☞ a. (mono)xós		*	*	
b. mo(naxós)		*!		*

6. Conclusions

Our analysis of the data in the preceding section just scratches the surface of the complicated data found in the AMG dialects. Even though the generalizations stated so far seem to cover a large majority of data, it is also possible to find problematic cases, which do not conform to what we have described. For instance, vowel-copying does not apply to examples such as *éfaksan* 'kill-3PL.PAST' Ul, D364. Moreover, some unproductive patterns of harmony are also attested, e.g. *keremítzi* (St.Gr. keramíði) 'tile' Sil, Ko168. We may see these forms either as lexical exceptions or as indications that other (diachronic) processes may have interfered. In either case, we believe that the basis of our analysis will stand to scrutiny.

One could wonder *why* AMG dialects have developed these intricate patterns of harmony. Even though we have shown that they do not really have a truly Turkic type of vowel harmony, it stands to reason that these patterns have still developed under the influence of language contact with Turkish. Possibly, this contact has brought Greek language learners to extend the patterns they already found in the Southern Greek of their parents so that they would resemble more vowel harmony. This could at least explain the copying pattern we find at the beginning of the word. Another related issue is why this 'Greek' pattern (the one with total copying) shows up at the beginning of the word, while the more 'Turkish' pattern (the one with spreading of [back] and [labial]) shows up at the end. Our presumption is that the language learner will have more opportunity to observe the Turkish pattern at the end of the word. First, vowel harmony patterns in Turkish are most easily observed at the edge between stems and suffixes

because this is the exact locus where alternations take place. It is well-known that Turkish has productive suffixes which adapt themselves to the stem. Second, the end of the word is where the main stress usually is located in these dialects (Kooij & Revithiadou 2001), so naturally this position tends to be more prominent and therefore more salient. Furthermore, we speculate that adoption of something similar to the foreign language is more likely to take place in salient positions than in less salient ones. In this respect then, we lean towards adopting Thomason & Kaufman's (1988) approach to contact linguistics even though we have shown that the traditional view of AMG vowel harmony as an instance of 'rule borrowing' is too heavily simplified.

Notes

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[1] The mutual relation of the idioms of twenty or so villages make up what is called here 'Cappadocian'. In addition to those mentioned explicitly in the text, the generalizations are also based on Delmeso, Potamia, Mistí, Aravan and Semenderé. Data are also drawn from other Asia Minor dialects such as Farasa, Silly and Livisi.

[2] The examples are organized as follows: in the left column, the underlying representation of the Standard Greek form is given. In the next column, the dialectal forms are provided together with glosses and information about the dialect and the particular source they are drawn from. When different from the standard language, the underlying representation of the dialectal form is provided within slashes /…/.

[3] The following written sources have been used in this paper: Dawkins (1916), Mauroxalyvidis & Kesisoglou (1960) for Axo; Kostakis (1968) for Silly; Andriotis (1948) for Farasa; Andriotis (1961) for Livisi; Dawkins (1916), Kesisoglou (1951) for Ulaghatsh.

[4] There are a few inconsistencies with respect to the ordering of /o/ and /u/. In all instances of *u*-copying over /o/, the vowel /u/ is stressed. Hiatus resolution, however, suggests that /o/ prevails over /u/, e.g. the compound /proto-júlis/ 'first of July' is rendered as [protólis] and the verb /tróɣusin/ 'they eat-3PL.PRES' is rendered as [trósin] after intervocalic /ɣ/ deletion has taken place.

[5] In the word *anésθitos*, the morpheme /an-/ is a prefix.

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