CROSS-DIALECT/LANGUAGE PARAMETRIZATION AND THE PHONOLOGICAL REALITY OF A 'NON-EXISTENT' PROCESS*

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This paper brings Greek cross-dialect and Greek-external data to bear on the theoretical question, whether dissimilative vowel-raising, a process proposed but later rejected in the analysis of certain Modern Greek dialects, is phonologically 'real' or not. The short answer will be: Parametrically speaking, yes it is!

1 Vowel Height Dissimilation

In their treatment of Greek dialect-phonology, Brian Newton (1972) and others have invoked vowel raising/Height dissimilation (HD) and Glide formation (GF), the roots of both of which lie in works of Hadzidakis (1907), Andriotis (1974) and others. Below, we support Newton's version of HD, with examples rom two Greek dialects showing independent HD (i.e. raising without a following glide-formation), viz. the dialects of Zakynthos (with primary VV sequences) and Samothraki (with only derived VV sequences, following r-loss), as in the examples under (2), (3) below. Moreover, we will compare evidence for HD not only in the distant languages of the Pacific islands, but even in an Amerindian language of California, thus giving us the near certainty that there are no historical connections between our 'outside' cases and the Greek ones. Height dissimilation (HD) and Glide-formation (GF) in Greek dialects

2.1 Height dissimilation (HD) and Glide-formation (GF) in Greek Dialects

Under Table 1, we include dialects with primary vowel hiatus:

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	Feature	**Dialects**
a)	Neither HD nor GF	e.g. Old Athenian
b)	Dialects with HD only	e.g. Zakynthos
c)	Dialects with GF only	e.g. Thessalia
d)	Dialects with HD and GF	e.g. SMGk & most dialects
BUT e)	Contraction (ea>e)	e.g. Ikaria, Crete

Table 1. Taxonomy

We also take relevant secondary hiatus, following loss of intervocalic voiced spirants in the SE Greek dialects, as well as r-loss in Samothraki, under Table 2:

	Feature	**Dialects**
a)	No change	e.g. Chios, Cyprus
b)	HD only	e.g. Kos, Karpathos, Samothraki
c)	GF only	e.g. SW-Rhodos

Table 2. Taxonomy with secondary hiatus

2.1 We then narrow the research

Here we give sample dialects for HD only:

a) Compare alternative treatments of primary hiatus from Zakynthos, viz. Newton (1972) vs. Mendez Dosuna (2002), in (1) below:

(1) **Zakynthos**

	Newton	**Mendez-Dosuna**
Base	*kariðéa	*kariðéa
HD	kariðía	x
GF	x	kariðjá
Dieresis, Stress	x	karidía

where Newton's (1972) HD is in contrast to Mendez Dosuna's (2002) GF and Dieresis.

b) Now compare secondary hiatus, where the output of r-loss is the input to HD, under (2):

(2) **Zakynthos**

		Base	**r-loss**	**HD**
Samothraki	a) front vowel target	pérasa >	péasa >	píasa
	b) back round vowel target	agórasa >	agóasa >	agúasa
Kalimnos	back round vowel target	róga >	róa >	rúa

2 A Problem

A serious claim in Mendez Dosuna (2002) is that in fact no language employs Vowel-height dissimilation. We will not discuss Dosuna's alternative analyses here, but will consider the potential contribution of a cross-language analysis of HD by itself.

As an interim argument, we might question the need for cross-language support to validate a phonological process.[1] The fact that HD is well documented in a single language could alone support its existence as a process, as Kiparsky (2008) puts it for the Australian language Ngalagkan, a fact that would then be orthogonal to the problem of its comparative rarity across languages.[2] However, in the light of the counter claim just mentioned, a comparison with other languages seems desirable, especially since the relevant languages have no possible relation to Greek or even to IE – as e.g. languages of the Pacific Islands.

3 For V-dissimilation

Yes, we want to claim that the process of HD is independently attested in and outside Greek. Our strategy will be to parameterize over a slightly abstracter dissimilative Vowel-Raising process (independent of following Glide-formatiom) for which there seem to be examples in a number of languages. Thus, Low Vowel Dissimilation occurs in a number of (Pacific) Oceanic languages (Bender 1969, Blust 1996, Lynch 2003) as well as in Alamblak, a non-Austronesian language of New Guinea (Blevins 2009);[3] we postpone the complex case of (North Californian Penutian) Wintu to the end of the story.[4]

Our 'Greek-external' examples[5] are from 3.1,2 (North Pacific) Marshallese and 3.3 (South Pacific) Vanuatu Paamese.

Note that we give MP cases only, thus avoiding the problem of the historical development of individual forms. The MP environments are of course diverse across languages.

Under (3,4) we illustrate Low-Vowel dissimilation for two geographically distant dialects.

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[1] Thus, in (Australian) Ngalagkan, the following distinction is found; geminates pattern with homorganic nasal+stop clusters and laryngeal codas; they fail to make syllable weight, as distinct from all other coda consonants. Kiparsky (2008) is undaunted by the extreme rarity of this distinction ('there is just one known example of it'); rather it suffices that it is well documented (ibid pp. 6-7). But this case is omitted in the version of 2011.

[2] The apparent rarity of V-V dissimilation is mentioned briefly in Walter (2007), Appendix 2, with the comment that V-.repitition is not generally subject to dispreference in the same way as consonant repetition is. She also mentions Susuki (1998), who points out that vowel dissimilation happens in more restricted environments whereas consonant dissimilation can occur over considerable distances! We add, whereas vowel dissimilation seems never to occur at greater distance than across a single consonant. Compare the prevalence of

[3] This predicts that raising will block when the intervening consonant is [+back] or a member of a cluster, or even (cf. East Chadic Kera, in Ebert, 1979) if a laryngeal precedes the target vowel.

[4] Mendez Dosuna allows Dutch and Calabrian as potential candidates. Blevins allows for S.Russian dialects, but has doubts on Wintu (under 9, Further Discussion).

[5] There are hundreds of languages spoken in the Oceanic islands. But we limit the comparison here to a couple of languages. At least one is from North -Pacific (Micronesian), another from distant South-Pacific (Melanesian) languages.

3.1 Marshallese

[-back, -round]	[+back, -round]	[+back, +round]	
[+hi, +ATR]	i	ɯ	u
[+hi, -ATR]	ɪ	ɣ	ʊ
[-hi, +ATR]	e	[ʌ]	o
[-hi, -ATR]	ɛ	[a]	ɔ

Table 3. Marshallese Vowel Allophones

Here in Table 3, Hi and ATR each allow for 2 heights, giving the 4 phonological heights of Bender 1969). The above relevant vowels under HD are bracketed.

V-raising with 3sg. suffix of some Noun. The relevant vowels under HD are underlined) as seen in the examples below under (3):

(3) [-Hi, -ATR] Cons [-Hi,-ATR] >> [-Hi,+ATR] Cons [-Hi, -ATR]

	Indep		**3sg-suffixed**
a)	head’	$p^{\gamma}ar^{\gamma}$	$p^{\gamma}ʌr^{\gamma}$+aɛn^{j}
b)	‘name’	jɛat$^{\gamma}$	jɛʌt$^{\gamma}$+aɛn^{j}
c)	‘eye’	m^{j}ɛt^{j}	m^{j}et^{j} +ɛn^{j}

3.2 Compare now

(S. Pacific) Vanuatu Paamese (Crowley 1982:40-41) prefix-raising [a > e] (Subject prefixes with tahosi ‘be good’) under (4):

(4) 1) ta-tahosi > te-tahosi ‘(it is) good’
2) na-tahosi > ne-tahosi ‘I am good’
3) ma-tahosi > me-tahosi ‘we (excl.) are good

This data we set against that for HD in Modern Greek (Andriotis, 1939; Mendez-Dosuna, 2002, Malikouti-Drachman and Drachman, 2011), noting that Mendez Dosuna’s analysis (employing synizesis, stress-retraction and dieresis) is irrelevant to the analysis of the Pacific data above. We will concentrate on the clear cases, i.e. those attesting HD by itself.

3.3 Parameters

(First, to clear out a basic question already mentioned (Section 2 above), shouldn’t we simply dismiss all these Pacific cases as irrelevant here: they are different from Greek, whether in their target, adjacency condition, need for an intervening consonant, etc?

Not at all! On the contrary, we will unify the two sets of data under a generalized process-family called dissimilative vowel raising.[6] The variants will fall under the setting of appropriate

[6] One member of the audience asserted that the Pacific data in this paper are simply different from the Greek, and thus not evidence for the generalized dissimilation of the paper. But compare Fn 2. above, and recall that a) there are Pacific languages showing strict Locality, and b) consonant dissimilation processes show the same +/-Locality

parameters (the constraint-rankings), so let us now look at some of the parameters/constraints we must subsume under our generalized V-height-Dissimilation. There are (under section 4.) below at least eight.[7]

4 Variation

	Pacific Low vowel (LV) Dissimilation	**Greek Mid vowel (MV) Dissimilation**
1.	LV diss applies (only?) across a C	MV diss, only string-adjacent VV
2.	VV-Identity (V_1-C-V_1)	(V_1V_2) Non-identity
3.	A very few langs show a > i or ə	Many dialects show e>i (>j)
4.	Back cons, CC, or a preceding laryngeal blocks LV raising	ANY intervening cons blocks dissimilation
5.	V1 (a) dissimilates from V2 (a)	V1 (e/o) dissimilates from V2 (a)
6.	Most languages, no stress-influence	Most dialects, V1 dissimilates, stressed or not
7.	A reversal of raising in otherwise raising areas	Also perhaps where Katharevousa gave doublets. Samothraki is a candidate
8.	MP cases are common.	Ditto

Table 4. The variants for vowel raising.

We temporarily interpret from the above the need to parametrize for Feature-assistance in LV dissimilation. Such assistance may be required, as in the Pacific languages, as we discuss below.

5 Explanations

5.1 Greek HD as an OCP effect

Having conceded the value of a cross-language comparison, how to explain HD? Suppose now that Height Dissimilation is an OCP (Obligatory Contour Principle) effect, a matter of grammar simplification (Cf Yip 1988, 1998, Alderete 2003, Malikouti-Drachman & Drachman 2011). Assume that the primary (unmarked) vowels are only /i a u/, (instantiating the I-property, the A-property, and the U-property respectively), so that e is really +a/+I and o is really +a+U.[8]

Then in the Greek process ea/oa > ia/ua we have to do with the OCP under Autosegmental Phonology (e.g. McCarthy 1986); the delinking of the shared a-Feature (on the vowel tier) leaves simply the I-property and thus the high front vowel. And this of course constitutes the grammar-simplification we mentioned, namely, by the unmarking of the mid-vowel. Similar argumentation holds for the o > u side of the Greek HD shift.

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effects across languages. Examples of distant (trans-syllabic, even Word-internal) consonant dissimilation are well known, e.g. from Grassmann's Law (1863).

[7] Bye (2011) counts 46 alternations across languages (building on Suzuki 1998), of which a third concern vowel-dissimilation.

[8] Giving the common five-vowel system,[i e a o u] as in Greek.

5.2 The pacific variants

But what about the Pacific low-vowel raising variants we exemplified above, viz a) Marshallese shows [a]-raising to [ʌ] by ATR (minus to plus, see Sec 3.1 and (3) above). b) Paamese shows a-raising & fronting aCa>eCa (cp. (4) above). This time we have to do with the *Identity condition (*aCa). Again, under the OCP, the unmarked vowel-sequence a-a is barred, at the cost of introducing the marked eCa.[9] So we see that as distinct from Greek, *Identity here dominates a markedness-preference.

6 The Intervening Consonant

We may now ask why the Pacific cases require an intervening consonant at all, and in fact usually a non-back one.[10] Paamese raising requires the strong feature-support function of an intervening non-back consonant. And a similar consonantal environment accompanies the simple ATR raising of Marshallese low unrounded back-vowels. However, while both cases involve blocking by post-velars, yet Marshallese invites further examination as to why, since the target vowel a>ʌ changes ATR values but remains +back (cp. Sec. 3.1 above), it gets support from nearly all consonants yet blocks with intervening laryngeal h & semi-vowel y? This is abstract Phonology and hardly phonetics! It is also reasonable that the unmarking Greek shift[11] requires no support from an intervening consonant, and thus bans it; instead, the domain is subject to strict locality, i.e. linear adjacency for the two vowels concerned.

7 The explanations continue: why not a phonetic motivation?

With Marshallese we have taken at least a step nearer to answering Blevins' remark on the Pacific cases, viz. that phonetic motivation for this recurrent sound change remains unclear. For we respond that this recurrent sound change is motivated not by phonetics[12] but rather by the phonology of the relevant languages, recalling that by assuming parametrisation, we include all the Pacific variants as well as the Greek ones under our generalized dissimilative vowel raising.[13] Cross-language comparisons thus strengthen the view that the HD found in Greek dialects constitutes a genuine process-variant.

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[9] Blust (1996) supports LVD as a universal phonological principle, citing the languages Ere and Marshallese which both show LVD despite the distance and lack of any historical connection between them.

[10] Simply put, 'requires an intervening consonant' would be a postulate, whereas we are aiming for an explanation. But for nearly each case, a property of either the intervening consonant or the target vowel itself is relevant.

[11] And the Greek-like (i.e. V-V), Pacific cases.

[12] Like most P-processes, HD is abstract (cp. DeLacy 2002), and in the end requires no grounding. But also compare Walter (2007), for a three-fold attempt to ground *identities, viz. from articulation, perception, and syntactic-phase constraints.

[13] Remnant is the possibility of Greek raising with reversed target/directionality, viz. the sequence a-e/o giving a-i/u. This would of course constitute a further part of parametrisation. MGk does not show such examples.

8 Conclusions

The main discussion concerned a so-called non-existing process postulated for Greek, viz. HD.

8.1 Unmarking, Locality, Identity

HD in MGk is clearly a case of Locality, i.e. linear-adjacent dissimilation; and the raising constitutes a case of unmarking. On the other hand, Low-Vowel Raising in the Pacific is a case of *Identity, one that in most cases requires the facilitative intervention of a non-back consonant. Markedness and *Identity are here seen as complementary aspects of the OCP.

8.2 The Pacific cases

The Pacific cases show parametrization among themselves, and we generalized 'dissimilative vowel-raising' to cover the MGreek mid-vowel as well,[14] thus in fact re-validating the process.

8.3 The non-raising cases

Consider the occurrence of non-raising languages in a dominantly raising area of the Pacific, in the light of the discussion on Rule Reversal in Ohala (1981). For Ohala, if the listener[15] supposes that the similarity of two adjacent consonantal segments results from assimilation, he/she might correct this by dissimilating one of the segments. Carrying the argument over to vowel segments, Lynch (2003) claims that such reversal occurred in those Vanuatu languages showing no Low Vowel raising even though raising is common in this area. But such an argument can hardly apply to the Greek case of Mid-vowel dissimilation.

First, not in those cases where no doublets appear under the influence of Katharevousa [Cf. Katharevousa influence in ennéa>ennía>ennéa, as also (Mendez Dosuna Fn 20) thíos > thjós > thíos, néos >ňós>néos]. Second, in that the Greek cases never involve identical vowels. And third,[16] recall the SE dialects of Chios, SW-Rodos and Cyprus, with surface hiatus due to loss of intervocalic spirants yet without any following Height Dissimilation.

Yet Samothraki is a possible case (data in Katsanis 1996): there disyllabics (but not polysyllabics) may optionally undo the (post r-loss) dissimilation rule, creating alternating forms such as 'gifts' dora > dua & also (the reversal) doa. Polysyllabics, on the other hand, give us agorasa > aguasa, with no optional reversal such as *agoasa. Optional reversal results from the interaction of the stem vowel of a disyllabic with the (directly following) inflection-vowel. But in polysyllabic verbs, where the stem-final vowel is not directly followed by the inflectional vowel, the original stem vowel is not recoverable. This strongly suggests the intervention of a Phase effect.

[14] For the Pacific cases, the standard sources give simply vowel raising, relegating the (e.g.) front property of the output to contextual allophony (where response is to labial, palatal or velar consonants). This agrees with the claim that (e.g.) the 4-vowels of the Marshallese system are specified for Height and ATR (advanced tongue root), but not for front-back or rounded-unrounded.

[15] For an alternative 'perception' strategy, cp. Fromkin and Rodman (1993).

[16] though we set aside Old Athenian as showing neither HD not GF.

8.4 Revert to the intervening consonant

Let us now revert briefly to the alternative scenarios on the presence vs. absence of the intervening consonant in the Pacific/MGk dissimilation data. a) Our first scenario postulated (as auxiliary hypothesis) a facilitative role for the intervening consonant in the Pacific data, as detailed so far. b) It is important to note that there are Pacific languages where raising even involves strict Locality, i.e. applies (as in Greek) only to linearly-adjacent vowels. c) There are even hybrid cases, to an important one of which we now turn.

9 Further discussion – the Wintu case

Extending the data-base by even one language can be very suggestive, positively or negatively. The case of Wintu a Penutian (Amerindian) language of Northern California, described in Pitkin (1984) is relevant but a puzzle; How so?

Well, Wintu is hybrid so far as vowel-raising is concerned: like the Pacific cases, raising requires an intervening consonant, but like Greek,[17] raising targets mid-vowels (and never low vowels). This complements our 'consonant facilitation' explanation – since (to the best of my knowledge) nothing in the literature on Wintu suggests that the intervening consonant must be a frontal one for the eCa to iCa variant but a back-rounded one for the oCa to uCa variant. Rather (taking first the Wintu data in Wilbur 1999), the intervening consonant is confined to the resonants and y, and is thus not Feature-facilitative at all. We are driven to seek an alternative auxiliary hypothesis.

We tentatively choose one involving the permissive/ transparency role originally assigned in Gafos (1999) to certain intervening consonants under assimilation in Vowel Harmony. Then for Wintu, we might assume that a permissive/transparent property of (only) resonants & y freely allows the required dissimilative interaction between the two vowels involved.

However, a glance at the primary Wintu source (Pitkin's grammar, 1984: 43-45) disillusions us yet again.[18] First, Wintu raising only involves the abstract mid-vowels (E,O) in certain verb-roots.[19] Worse, as the data in (5) below make clear, low-vowel dissimilation occurs across stops, whether front or back, i.e. p in form a) below, and k in form b) below. Moreover, form c) below shows that a long target vowel (V:) does not dissimilate.

(5) Extent of Wintu raising

a)		cEpastin	> cipastin	'tell dirty stories'
b)		kOka	> kuka	'to position rafters'
c)	But	xe:ta	> xe:ta	'to peel'

So, in the end it seems that Vowel-height dissimilation does not necessarily involve some Feature-property of an intervening consonant, as we claimed for our Pacific cases. For Wintu, it may rather depend on the further parameter, an abstract/archiphonemic property of the target

[17] It is important to note that there are also Pacific Island languages where dissimilation involves strict Locality (i.e. linearly adjacent VV without intervening consonant), again like Greek.

[18] This illustrates the danger of relying on secondary sources.

[19] Bye 2011 suggests an underlying distinction based on ATR values,, and that [i/u] revert to [e/o] in non-raising environments.

vowel itself; as we said, in certain verb-roots.[20] Despite Blevins' (2009) concluding 'suspicion' regarding Wintu as a case of dissimilation, we take all this new data on variation to be derivable within the parametric i.e. the constraint-theoretical frame discussed.

10 How do we stand, finally?

First, take our auxiliary hypotheses as constraints, over which L-specific dominance relations or ranking will apply. Since ranking will of course be specific to individual languages or language-groups, I simply list here the primary members of the family of V-raising constraints involved, together with the languages to which they especially apply:

1. All our languages -- the target is the first of the two vowels –- i.e. Directionality.
2. MGreek involves the constraint variants –- Locality, & Mid-V-raise (Unmarking).
3. The Pacific langs involve the constraint variants -- *Identity-Lo-V, & Facilitative C.
4. And Wintu involves the constraint variants -- Mid-V-raise (Unmarking), & C.

Table 5. Language-constraint correlations

The parameter/constraint-based account thus covers Low-vowel raising in the Pacific, revives Mid-vowel raising for Modern Greek, and welcomes hybrid Amerindian Wintu into the extended 'dissimilative Vowel-raising' family. The analysis clearly supports the 'reality' of HD for Greek.

11 The Theme

How does the paper conform to the theme of the conference? Quite directly, it seems. I generalized across the theoretical parameters/constraints emerging from comparison of cross-dialect and cross-language data. As a result, I proposed that a phonological process that had been condemned as non-existent is in fact 'real', for Modern Greek dialects as elsewhere. Notice that my explanation is not external, i.e. is not stated in terms of universal phonetics. Instead, it explains the Greek cases in terms of an overarching parametrised phonological process-type, dissimilative vowel-raising.Thus it is 'internal', but nevertheless counts as an explanation (See Baker 2012), insofar as it relates one set of linguistic facts (those of Modern Greek) to a broader pattern of linguistic facts in an interesting and non-ad hoc way. All these processes/constraints are well-attested elsewhere.

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[20] And dissimilation largely fails to apply at a word-boundary for some of our languages, or fails even more generally when the target vowel V1 is immediately followed by a consonant cluster.

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