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# Remarks on The Phonology of The Transitional Period of Northwestern Karaim

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**Abstract:** The paper presents some thoughts on the phonology of Northwestern Karaim during its transition from vowel to consonant harmony, that were enabled and spurred by a recent discovery of an 18th century manuscript. It advocates a greater inclusion of the diachronic perspective in synchronic endeavours, and the concession of the notion of multiple phonologies coexisting and cooperating in one period.

**Key words:** Karaim, phonology, history, consonant harmony, vowel harmony

# Kuzeybatı Karaycasının Geçiş Dönemi Fonolojisi Üzerine Notlar

**Özet:** Bu makale, son zamanlarda bulunan 18. yüzyıla ait bir elyazmasından hareketle, ünlü uyumundan ünsüz uyumuna geçiş sürecinde Kuzeybatı Karaycasının fonolojisi üzerine bazı düşünceler sunmayı amaçlamaktadır. Çalışmada ayrıca, art zamanlı bakış açısının eş zamanlı çalışmalara büyük ölçüde müdahil olduğu ve farklı fonolojik yapıların müşterek olarak aynı zaman diliminde bir arada bulunabileceği savunulmaktadır.

**Anahtar Kelimeler:** Karayca, fonoloji, tarih, ünsüz uyumu, ünlü uyumu

## Rationale and acknowledgements

Northwestern Karaim is the only Turkic language, and one of the few languages in the world, that has consonant harmony. The process of transition from vowel harmony was anything but instantaneous. A recently discovered manuscript documents one of its early phases, and poses an interesting challenge to phonological interpretation.

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I will: 1. set the stage by briefly introducing the process and the manuscript, 2.1–2.3. present a synchronic description of four consecutive stages, 2.4. followed by a view from the diachronic perspective, and 3. outline some of the possible applications of what I believe to be the most appropriate solution.

I want to express my gratitude to Michał Németh (Cracow, Poland) who kindly shared his unpublished materials with me and devoted considerable time to discuss them. My thanks are also due to José Andrés Alonso de la Fuente (Vitoria/Barcelona, Spain) and Mateusz Urban (Cracow, Poland) for inspiring consultations.

## 1. Introduction

The harmonic shift of Northwestern Karaim was not entirely straightforward, and not all details are easy or even possible to establish. The most accurate descriptions to date are given in Németh 2011, 2014a and 2014b.

The process has not been quite completed yet; vestiges of the old phonology are today restricted but they persist (see 2.3). The shift was set in motion by three fundamental changes: *e* > *ʹa* (palatalization of the preceding consonant + *a*), *ö* > *ʹo*, and *ü* > *ʹu*. They were complemented by palatalization of those consonants in front-harmonic words which were not affected by this initial change (the post-vocalic ones, consonants in the first syllable with *e*, as in *śeń* ‘you’, etc.). The result was that vowels ceased to determine the harmony, and their function was taken over by consonants: palatalized ones corresponded to front vowels, non-palatalized ones to back vowels. Northwestern Karaim turned consonant-harmonic. There are exceptions to this scheme, and alternative interpretations (see 2.3), but what is most important for us here is a recently discovered manuscript which attests that these changes were not at all simultaneous.

The manuscript is a fully vocalized translation of the Torah which was copied in 1720 from an unknown source. The text was not published as a whole, but two parashot (sections) have been preliminarily analysed and graciously shared with me by Michał Németh. They are Bo and Yitro, and they contain in total 3522 Karaim words. Some of them are Middle Karaim vowel-harmonic, some are modern consonant-harmonic, and some are mixed.

The scribe was Simcha ben Chananiel, the second hazzan of Kukizów, a provincial town in eastern Poland (now the Ukrainian village of Кукезів = English Kukeziv). It lies in a relative proximity to the two centres of Southwestern Karaim, Lutsk (= Луцьк = Łuck, ca. 130 km or several days on foot or in a wagon) and Halych (= Галич = Halicz, ca. 125 km). The distance

to the northwestern centre, Trakai in Lithuania (= Trakai = Troki), is five times greater, ca. 600 km or a several weeks' march. The town was initially inhabited by northerners who came there by the end of the 17th century, and were later joined by a group of southerners (Gąsiorowski 2008: 192).

It would be natural to suppose, in this situation, that our manuscript does not document a transitional period of Northwestern Karaim, but a mixture of the northern and the southern dialect. Németh 2014b: #4.1 discusses this possibility in more detail; his crowning argument against is that the original **ŋ* is reflected in the two parashot as *j* in all of the positions where we find *j* today. This is a northern trait; in the south, we would have expected *n*. Approximately forty years passed between the arrival of the first Karaim settlers in Kukeziv, and the writing of the manuscript. It is unlikely that during this time the northern consonant harmony would have been half eliminated, while no southern *n*-forms whatsoever would have penetrated into their language. It is also unlikely that consonant harmony would have started in Kukeziv, a tiny peripheral community, and spread from there to reshape the language of the Lithuanian centres while having had no impact on the geographically much closer southwestern dialect. A much more plausible supposition to make is that ben Chananiel copied, quite accurately, an old northern translation – perhaps one brought along by one of the colonists.

Deciphering of the two parashot is severely restricted by their orthography. In particular, two crucial notations collide: on the one hand, *ö* and *ü* were spelt by the combination of *yod* with *waw* and the appropriate vocalization sign (יִ ,יוּ); on the other hand, palatalization of consonants was only marked pre-vocalically, with a *yod* (e.g. גְיא for *ǵa*). As a result, the sequence consonant–*yod*–*waw* can stand for both, *ĆO* and *CÖ*. Two out of the three palatalization shifts (see above) left no trace in writing. Words such as *köplügün#d-acute-above#an* 'due to their great number' (Yitro 37) or *kötürsünler* 'they shall bear' (Yitro 61) should be in fact transcribed *köplügün#d-acute-above#a*n and *kötürsünle*r, if we used grey to mark the uncertain portions.

Nonetheless, the clearly recorded *e* > *ʹa* shift is quite illuminating.

Perhaps the most striking observation (Németh 2014b: #3.4f) is that it did not occur in all the positions simultaneously. In the two parashot, it is never attested beyond the final syllable – which happens to always be a suffix. Secondly, it did not happen simultaneously in all the words. It can be seen in 39 roots, and it is missing from 108. Their distribution in the text appears to be entirely random.

This raises a number of questions. This paper will only attempt to address those concerning the synchronic interpretation of Karaim phonology during the transitional period, and its implications for the diachronic picture.

## 2. Transitional phonology

Let us see how these changes affected the phonology. We will start synchronically, with the period before the shifts and a hypothetical stage after they will have been completed (2.1), then we will move to the turn of the 17th and 18th century (2.2), then to modern Karaim (2.3), and lastly, we will look at the whole from a diachronic perspective (2.4).

The factual parts of this section are based on Kowalski 1929, Németh 2011, 2014a, and 2014b. The exact locations in the sources will be only cited when the information goes beyond established knowledge.

### 2.1. Before and after the shift

The stage before the changes will be referred to as Middle Karaim. Not all the details are clear, but the general picture can be painted as follows.

The vowel system was probably similar to the general Turkic model, and consisted of eight phonemes, /a, o, u, y, e, ö, ü, i/, a half front, and a half labial. There were about 24 consonant phonemes, all non-palatalized. (I ignore here the issues of *e*-type vowels and *h*-type consonants, and some others, as they are ultimately irrelevant to the remarks made in this paper.) Vowels operated under the rules of harmony which was based on two oppositions, the primary (obligatory) front : back, and the secondary (only in certain suffixes) labial : non-labial. Three pairs of consonants, [k : ḱ], [g : ǵ], and [ɬ : l], were best described as allophones; in native words, the non-palatal variants could only be found before back vowels, the palatal ones before front vowels.[1] Claiming any other status for them (see 2.3) only complicates the description and offers apparently no benefits.

Overall, the system appears to have been quite clear and neat, and it could only be disturbed by borrowed stems, some of which had more faithfully retained their original shape than others, and mixed front vowels with back ones.

It was mentioned in 1 above, that the harmony shift has not been quite completed yet. Let us extrapolate it and see to what kind of a system it leads. The detailed premises are given in 2.2 and 2.3.

1 The exact pronunciation of *k* and *g* is uncertain. The velarization may have been deeper, [#k-less-than-below#] or even [#k-diaeresis-below#].

The number of vowel phonemes would be halved. Only /a, o, u, i/ would be left, and /a/ would have the allophone [e] before /j/, and /i/ the allophone [y] after non-palatalized consonants. The consonant system would grow to 45: the 22 modern non-palatalized ones, their 22 palatalized counterparts, and /j/ which, for phonetic reasons, cannot be expected to have both variants. Harmony would retain both oppositions; the front : back would be realized by consonants, the labial : non-labial by vowels.

Overall, a clear and elegant system again, and one that can be only sullied by borrowings.

### 2.2. The 17th and 18th century

The situation in our manuscript is more ambiguous.

First, the vowels. Four are clearly marked: /a, e, o/, and /u/. As for /ö/ and /ü/, we may have no way of establishing their phonetic, and hence phonological value in inlaut (see 1), but we can observe them in anlaut and we know that they have been preserved in this position till this day, and so the lack of specific minimal pairs in our two parashot is not a sufficient reason to deny them the status of phonemes. (See 2.3 for the appropriate pairs in the modern language.) The pair [i] : [y] is not distinguished in writing, and the modern situation is also not absolutely clear (2.3). Most likely, they should be considered seperate phonemes in the 17th/18th century. Overall, the stock can be said to be the same as it was in Middle Karaim.

The consonants are slightly more interesting. The previously allophonic pairs [g : ǵ] and [ł : l] should now be granted the status of phonemes because now the palatalized variants are also attested, in native suffixes, before the back *a*. Maybe the same is true of [k : ḱ], e.g. in the *-ka* variant of the dative suffix, but an appropriate form does not occur in our two parashot. Six more palatalized consonants are attested before *a*: /#č-acute-above#/, /#d-acute-above#/, /#t-acute-above#/, /ḿ/, /ŕ/, and /ś/. The exact phonetic values of all the remaining consonants cannot be established, and we do not know whether the palatalization happened before or during the *e* > *ʹa* shift (see 1), but for phonology this is irrelevant. The /e/ following them remained front, and so the palatalized variants, if they existed, were merely allophones. Overall, at least eight new consonant phonemes have appeared.

As ever, the harmonic system could be upset by singular borrowings which had their original pronunciation followed more closely than, in theory, the Karaim phonology would have required.

This situation has peculiar consequences for the synchronic picture.

At least six categories must be concluded to now have more suffixes than they had had in Middle Karaim. (I will ignore here the old present participle in *-a*, as it seems to only be attested in *köŕa* ‘according to’ (lit. ‘seeing’), a form that might have already been fully lexicalized at the time, see e.g. Zajączkowski 1932: 106.) The affected categories are: plural, dative, locative, ablative, deverbal nouns in *-ma*, the conditional mood, and probably more in the as yet unanalysed parts of our manuscript.

Let us use the example of plural. In Middle Karaim, the opposition was [łar] : [ler], corresponding to /lar/ : /ler/.[2] In modern Karaim, it is [łar] : [lar], which corresponds to /łar/ : /lar/. In our manuscript, phonetically, all words continue the Middle Karaim opposition in the non-final syllables, but its phonological interpretation has shifted to /łar/ : /ler/. In the final syllables, some words show this opposition, others – the modern one. Neither group has any particular phonetic qualities; in fact, some stems can act both ways, e.g. *etme* : *etḿa* ‘doing’ (Bo 77, Yitro 37 : Yitro 32).

In the absence of phonetic indicators, we are forced to consider the choice between /lar/ and /ler/ in the final syllable, to be determined lexically. In our two parashot, 108 stems only appear with vowel-harmonic suffixes (not necessarily *-lar*), 24 with both consonant- and vowel-harmonic ones, and 15 only with consonant-harmonic ones. We need to concede three paradigms, and I can think of three ways of dealing with this multitude.

1. Exceptions. Vowel-harmonic forms can be described as regular, and consonant-harmonic ones as exceptional. This is a very convenient solution; it fits in one sentence, it does not necessitate any further reasoning or explanation, it does not affect anything outside of phonology, and most importantly, it is technically true.

   Its weakness, however, is that it does not in fact explain anything, that it may create the false impression that consonant-harmonic forms are merely a collection of singular special cases without any particular relation to one another, that as the change progresses, this interpretation becomes increasingly stretched, and finally, that once vowel-harmonic forms become eventually less numerous, the labels must be swapped for a reason that is not at all obvious from the synchronic point of view.

   Overall, this might be a practical abbreviation to use in a grammatical sketch, but it cannot be considered a serious interpretation, and it will be mostly disregarded below.

2 This notation is not meant to imply that [ł] is a variant of [l]. Both are equivalent allophones of a single phoneme. The correspondence could just as well be written /łar/ : /łer/ or /Lar/ : /Ler/.

2. Indo-European-type declension/conjugations (= d/c). This is an unusual solution for a Turkic language, but I believe it is not unwarranted in this situation.

   Let us assign the most numerous, exclusively vowel-harmonic stems to the first d/c; the least numerous, exclusively vowel harmonic ones to the second, and those which can act both ways to the third. Examples: First d/c: *erkekler* 'males' (Bo 269), *etereḑiler* 'they judged' (Yitro 69–79, 71–72), *kohenler* 'priests' (Yitro 133, 139); Second d/c: *azizlensinlar* 'let them sanctify themselves' (Yitro 134), *jigitlar* 'men' (Bo 35, 215), *sen#d-acute-above#an* 'from you' (Bo 273, Yitro 47); Third d/c: *berdiler* : *berdilar* 'they answered' (Yitro 91 : Bo 212), *köklerde* 'in heaven' (Yitro 147) : *köklerǵa* 'toward heaven' (Bo 64, 66), *šeminden* : *šemin#d-acute-above#an* '[swear] to his name' (Yitro 155 : 157).

   Note that the stems from d/c's one and two might be found to actually belong to the third, as new parts of our manuscript are analysed. In the most extreme case, it may be that in fact all stems are attested with both vowel- and consonant-harmonic suffixes, i.e. that they all belong to the third d/c. The choice between /lar/ and /ler/ in the final syllable would be determined neither phonetically nor lexically. Apparently, it would be purely whimsical, at least as regards singular instances; not a desirable conclusion for a grammarian, even if it is perhaps the actually correct one. When analysed in larger numbers, however, they would most probably follow tendencies that can be described statistically. See 3 for a diachronic example.

   I should note that this interpretation implies, a little surprisingly, that the phonetic change *e* > *ʹa* in the final syllable affected the phonology of consonants in non-final syllables. The appearance of sequences [ǵa] and [la] in suffixes secured the phonemic status for [ǵ] and [l], and in turn enforced a reinterpretation of [ǵe] and [le] everywhere, from /ge, le/ to /ǵe, le/. (The difference is not apparent in the latter because the allophones [l, ł] are traditionally assigned to the phoneme /l/, which is the palatalized counterpart, unlike [ǵ, g] which are assigned to the non-palatalized /g/.)

3. Multiple phonologies. The old, vowel-harmonic system is being gradually ousted by a new, consonant-harmonic one, from the final syllable backwards, and our manuscript records a relatively early phase of the process. Diachronically, this is *the* correct view, but it goes against the practice established in synchronic accounts, of picturing phonology as a monolith.

The old phonology (= p1) is simply what was summarized in 2.1 under the name of Middle Karaim. The new phonology (= p2), I assume, should be the hypothetical target system imagined also in 2.1 – rather than some arbitrary transitional stage such as e.g. the modern langauge (2.3). In the particular case of our manuscript, p1 is not limited in any way, while p2 does not occur outside of the final syllable. As the change progresses, these proportions would be turned.

Note that if we accept this interpretation, the remarks made at the beginning of this subsection no longer hold. New consonat phonemes did not appear. What appeared is a second phonology which just happens to have almost twice as many consonant phonemes, and can be optionally employed in the final syllable in place of the old one.

One might be tempted to bind these phonologies to specific stems, but this would create a sort of 'phonological declensions', and make this interpretation nearly identical to the d/c one. If we can refrain from doing this, we will keep the whole of the harmonic shift neatly within the level of phonology, both from the synchronic and the diachronic perspective, and we will make our interpretation open in a natural way to the fact that singular instances are unpredictable, and it is only in a broader view based on a large number of examples, that tendencies, statistical tendencies, emerge. See 3 for a diachronic example.

### 2.3. The 20th and 21st century

On the whole, modern Karaim has a less unusual phonology. Its interpretation has nonetheless fuelled quite a long-standing debate in which it was proposed that the language should be considered consonant-harmonic, vowel-harmonic, or syllable-harmonic; see Stachowski K. 2009 for a summary. Here, a more traditional, structuralist-like approach will be adopted; an Optimality Theoretical account can be found in Nevins/Vaux 2004; Denwood 2005 gives a Government Phonological one, but based on inaccurate data.

In older texts, there continue to be eight vowel phonemes, even though the distribution of four of them is quite restricted. The labials /ö/ and /ü/ only appear in absolute anlaut. This makes it difficult to find minimal pairs, but not impossible (KRPS): *op* '1. grab!; 2. absorb!' : *öp* 'kiss!', *or* 'reap! mow!' : *ör* 'weave! braid!', *ur* 'hit! strike!' : *ür* '1. blow! breathe!; 2. bark!'.[3] Conversely,

3 Admittedly, these three might be the only pairs in existence: *ö* and *ü* can be only found in the absolute anlaut of front words, whereas *o* and *u* cannot appear in this position. Back words, on the other hand, will have their consonants not palatalized, and so most pairs are not in fact minimal. Luckily for *ö* and *ü*, seven consonants are alwas non-palatalized in auslaut (see below). Appropriately shaped nomina do not seem to be attested; the six verbs, however, in the suffixless variant of 2Sg imperative, provide the necessary support.

/y/ is very rare in anlaut, and indeed in newer texts it is missing from this position altogether (Németh 2011: 13). In all the other positions, it is allophonic with /i/. Lastly, /e/ only appears in the first syllable, and before /j/ where it was both preserved and arose from the previous /aj/. Note that in this latter case, despite the re-fronting, the preceeding consonant remains non-palatalized, as e.g. in [jatkej] 'let it lie' : [je#t-acute-above#ḱej] 'let it suffice' (Németh 2011: 24).

Again, in older texts, 48 consonants were attested. In newer texts, five of them are no longer used (*ɣ*, *ŋ*, *#ŋ-acute-above#*, *w*, and *ẃ*; Németh 2011: 14f). This leaves us with 43 sounds, which can be divided into three groups: twenty non-palatalized consonants, their twenty palatalized counterparts, and three consonants which do not have palatalized versions, /f/, /χ/, and /j/. Only the last one can be easily explained. Moreover, four consonants do not appear in their palatalized variants in auslaut (*k*, *m*, *p*, and *r*), totaling to seven sounds which are always non-palatal in this position. This has consequences for the description of the vowels system (see fn. 3).[4]

Harmony operates both on consonants and on vowels. In principle, consonants realize the front : back, and vowels the labial : non-labial opposition; but in reality, vowels retain a vestigial part in the former, too. /ö/ and /ü/ can only appear in front words, and in very rare cases (see fn. 3) they may be the only indicator of frontness. This is changing however, as *ü* is being gradually substituted with *ju-*, and *ö-* must be expected to follow if only the language survives for long enough. Also /e/ has been retained unchanged in the first syllable. The case of [i] : [y] is a little odd. Apart from anlaut, *i* only occurs after palatalized consonants, *y* only after non-palatalized ones; a neatly complementary distribution, where it should be left to the anlaut to decide the phonological status. Dictionaries, both older and newer, attest *y* in this position; sound recordings do not (M. Németh – p.c.). The most probable solution seems to be that modern lexicographers – who, perhaps not inconsequentially, are not professional linguists (Józefowicz 2008, Juchniewicz 2008) – choose to follow the established orthography, regardless of their own actual pronunciation. If one accepts the evidence of recordings above that of dictionaries, *y* must be declared an allophone of *i* – strange, as this conclusion might appear to a Turkologist presented with such examples as *#t-acute-above#iḱ#t-acute-above#i* 's/he sewed' : *tyjdy* 's/he stopped', or *kyšyjyz* 'your winter' : *ḱi#š-acute-above#ijiź* 'your man'. While this interpretation seems to be counterintuitive at first, it actually produces a more elegant description where

4 As an exercise, let us imagine that *ṕ* and *ŕ* can occur in auslaut. The three minimal pairs for *ö* and *ü* would no longer be minimal, and we would be forced to deny them the status of phonemes. Would they be combinatory allophones of /o/ and /u/ in absolute anlaut before palatalized consonants? Perhaps. Phonetically, this might seem like a tempting interpretation, but historically and comparatively, it would be quite absurd.

the two harmonic oppositions are quite neatly divided between vowels and consonants, and the only blemishes are those of /ö/ and /ü/ in absolute anlaut, and /e/ in the first syllable.

And, naturally, an occasional loanword which may disobey these rules.

For the early 18th century, I proposed three interpretations (2.2), one that labeled forms as standard or exceptional, one that involved multiple declensions/conjugations, and one with multiple phonologies operating simultaneously. Two hundred years later, none of them is any longer required. Front vowels are now effectively limited to the initial syllable (outside of it, [e] only appears before *j*), and as a result, suffixes have all become purely consonant-harmonic.

The only interpretation that could still hold would be the third one. It is not necessary, but it could be still employed to lend diachronic depth, and thus explanation, to an otherwise exclusively synchronic picture. The proportions would be turned, and the boundaries more meandering. This time, p1 would be restricted to just the very vowels themselves (the palatalization of the consonants surrounding them would already be a sign of p2), and all the other sounds would operate under p2. It is debatable whether this would be a clearer picture.

### 2.4. The diachronic view

Northwestern Karaim phonology is also quite interesting when looked at diachronically, but the picture depends on which interpretation one adopts for the intermediate synchronic stages. Three were adduced in 2.2.

1. If one chooses to see the less numerous forms as irregularities, the diachronic perspective becomes a history of exceptions which appear and disappear, it must seem, quite randomly. The tipping point in the middle of the process, when consonant harmony becomes the norm, happens without a reason or explanation. Clearly, this is not a promising approach.
2. The declensions/conjugations scheme paints a more interesting picture. In Middle Karaim, harmony operated on vowels, while the [ḱ, ǵ, l] trio (see 2.1) could easily be reduced to a purely phonetic issue. Probably around the end of the 17th century, a change occurred in phonetics which caused a shift in phonology which, in turn, provoked a revolution in morphology. From this point on, the transition continued simultaneously in morphology (as the second declension ousted the other two) and in phonetics, as the *e* > *ʹa* change spread backwards from the final syllable,

and perhaps together with it, the *ö* > *ʹo* and *ü* > *ʹu* shifts. Interestingly, phonology appears to have been unaffected. By the early 20th century, the conversion in morphology had been completed, and the one in phonetics has progressed as far as the initial syllable.

It is not obvious, in this scenario, when or how the actual harmonic shift – a phonological change – occurred. Let us slightly adjust our understanding. The backing of *e* only happened in the final syllable, and in all of our examples, this syllable happens always to be a suffix. Perhaps, then, the change was morphonological in nature, a shift of harmony that merely used declension and conjugation as a vehicle? But this is not a very good start, because what follows from it is that a morphonological change can cause a phonetic shift, and what is more, one that does not consistently affect any particular surrounding or position. At this point, one might want to see morphology and phonetics join to serve as a vehicle for a phonological change, but this would be really just a different way of saying the same thing. Perhaps, then, we should want to begin with lexis if the changes are so inconsistent. But note that at first only suffixes are affected, and that there is a very clear phonetic change, and that phonology is also shifted in the process.

Overall, this interpretation must be considered overly complicated, counterintuitive, and eventually failing to capture the essence of the process, or indeed to explain it.

3. Finally, the multiple phonologies. Here, the change began when new phonological variants of suffixes appeared probably around the end of the 17th century, and it has continued ever since through lexical diffusion, as the scope of the old vowel-harmonic phonology was being incresingly restricted. At the moment of writing this, the transformation is still ongoing.

   The diachronic picture is clear. The exact time of the tipping is unknown, but it is due to lack of written records from the appropriate period, not to an incompatible theory. The weakness of this interpretation lies in the synchronic view of the very late stages of the transformation, as we saw in 2.3. Supposedly, a similar problem might concern the very early stages, between pure Middle Karaim and our manuscript.

This last interpretation has another advantage. It was mentioned that at every stage, the harmonic structure could be disrupted by borrowings. They can be done away with quite easily, simply by labeling them as exceptions, but I put it that claiming for them a separate, coexisting phonology or phonologies

might be a preferable approach, both diachronically and synchronically, because it produces a more comprehensive and better informed description of the language, that is not only technically true.

Note, however, that this is not to say that foreign words have an entirely separate phonology of their own, or that they form a sort of sub-language that is embedded in the native system, but independent from it. The boundary still runs through words, not between them. Regardless of how much a stem disobeys the rules of harmony, it will still be given just front or just back suffixes – or, indeed, a mixture of the two in proportions defined by the very regulations which control native the phonologies.

### 3. Conclusions

All the above considerations can be reduced to this conclusion: it is probably advantageous to describe northwestern Karaim in terms of two separate and coexisting phonologies, rather than to force it into a single monolithic system. The same solution can possibly be applied to not fully nativized loanwords.

One of the reasons is that the introduction of a diachronic depth into a synchronic description lends it the power to actually explain, rather than to merely deal with, words and forms that operate under a different system than the majority. When put together, such synchronic descriptions of various periods combine to form a coherent and true picture, which is not necessarily the case when other interpretations are adopted.

The harmonic shift of Northwestern Karaim is a very explicit example of that, but in actual fact, all languages are constantly in the process of reshaping themselves, and the transformation often takes a substantial amount of time to complete. If we are lucky to have sufficiently ample data, we can characterize the process quantitatively. The so called Piotrovskij-Altmann law is a formula that produces a sigmoid (a function in the shape of a stretched letter *s*), defined by three coefficients which determine the exact moment when the change begins to slow down, its intensity, and its strength. (See Stachowski K. 2013: 109f for a brief but accessible introduction.) It was used to model various changes, from morphological shifts, through influx of loanwords, to sentence length, and others, and typically, it was found to account for upwards of 90% of the observed variation.

Many of the cases it was applied to, could – synchronically – benefit from a description involving multiple coexisting phonologies, morphologies, etc. Examples of ongoing phonological changes are many: the rise of voiced spirants in Old English or of /f/ in Old Polish, palatalized [ḱ, ǵ, l] before back

vowels in loanwords in Turkish, the notoriously difficult to describe *rendaku* in Japanese, the unfinished labial harmony in Hungarian, the vestigial harmony in Estonian illative in *-ha*, etc.

Just as lexicographers seem to have conceded the inherent instability of their subject, and label words as *archaic*, *neologisms*, etc., as sociolinguists embrace this variation, and have even made it their own field to some degree (see e.g. Labov et al. 1972), so, I believe, could also synchronic phonologists and morphonologists more readily accept language for what it is, an accumulation of thousands of years worth of completed, progressing, and abandoned local modifications. I want to advocate a greater inclusion of a certain amount of diachrony in the synchronic perspective, in particular when it means to describe languages in terms of two or more phonologies or morphonologies that all operate simultaneously.

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