

Notes on Some Turkic Vowel Developments

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Abstract

This contribution deals with four types of vowel developments found in Turkic languages. Two of these, *i-umlaut* and *u-umlaut*, are regressive vowel assimilations, the other two—*vowel raising* and *vowel lowering*—originate in a reduction in terms of quantity. In order to get a rough idea of the distribution of the phenomena under discussion, modern Standard Uyghur, a language in which these developments are especially common, is taken as a starting point. Lexemes in which one or more of these changes occur are compared with the cognates in other modern and historical Turkic languages. It turns out that while most of the vowel developments considered here have gained a certain dissemination across the Turkic world in individual lexical items, the instability in the vowel system is especially striking in the Uyghur area.

Keywords: Turkic languages, phonology, lexis, etymology, sound harmony, umlaut, vowel raising, vowel lowering.

Progressive and regressive vowel assimilations

In Turkic languages, sound assimilations usually operate progressively (i.e. the preceding syllable influences the following with respect to

certain sound features.) Sound assimilations typical for Turkic languages are palatal harmony and labial harmony. *Palatal harmony* renders an opposition front vs. back [\pm front]. In Uyghur for example, there is a plural suffix with a front (palatal) variant *-ler* and a back (velar) variant *-lar*. The appropriate variant is selected according to the stem. Hence, the plural of *öy* ‘house’ is *öyler*, the plural of *oy* ‘thought’ is *oylar*. *Labial harmony* renders an opposition round vs. unround [\pm round]. In Kirghiz, the plural suffix has the unround variants *-Ler* and *-Lar* and the round variants *-Lör* and *-Lor*. The plural of *ay* ‘month’ is *aylar*, the plural of *oy* ‘thought’ is *oylor*. Although palatal and labial harmony are often collectively referred to as “vowel harmony”, palatal harmony affects consonants as well. In Uyghur, the dative of *öy* ‘house’ is *öyge*; the dative of *oy* ‘thought’ is *oyga*.¹ The configuration of palatal and especially labial harmony differs considerably between the various Turkic languages. What is common to all varieties of Turkic is that these sound harmony processes operate *progressively*.

However, in some Turkic varieties there are also *regressive* vowel assimilations.² These are especially striking in the Southeastern branch of Turkic and are often referred to as *umlaut*. Two different types of umlaut phenomena, as well as two unrelated but equally striking types of vowel reduction will be the topic of this contribution.

- 1 The factors determining the choice of the suffix variants are quite intricate: On the one hand, there are cases where not the stem vowel, but the stem as a whole seems to carry the sound harmony information, as in *iš* ‘work’, which is [+back] although the stem vowel /i/ is ambiguous in this respect (hence suffixed forms like *išlar*, *išqa*, et cetera). On the other hand, there are cases where the stem vowel determines the suffix vowel even if the stem ends in a consonant that unambiguously carries the opposite sound harmony feature: Thus, *xelq* ‘people’ takes front vowel suffixes although the consonant auslaut is back (*xelqler*, *xelqte*). This results in suffix variants that are hybrid with respect to sound harmony (in other words, in which there is no intra-syllabic sound harmony), as the dative suffix variant *-qe* in *xelqqe*.
- 2 In some Turkic languages, there are also regressive *consonant* assimilations, as Yakut *orommut* ‘our beds’ from *oron* ‘bed’, or spoken Uyghur *küller* ‘days’ from *kiim* ‘day’. Consonant assimilations will not be dealt with in this article.

I-umlaut

I-umlaut is a vowel assimilation phenomenon typical for Uyghur. It affects the low unrounded vowels /a/ and /e/ in initial open syllables. In this position, /a/ is raised and fronted to a closed /è/ if a primary /i/³ occurs in the subsequent syllable. For example, the Turkic word *sariy* ‘yellow’ is represented as *sériq* in Uyghur (UTIL 3: 650), T *yarim* ‘half’ as Uyg *yérim* (UTIL 6: 694), T *yañi* ‘new’ as Uyg *yèñi* (UTIL 6: 723–724) and T *yašil* ‘green’ as Uyg *yèšil* (UTIL 6: 709). /e/ in open initial syllables is raised to /è/ as well, but unlike /a/, there need not be a primary /i/ in the following syllable. Hence, Uyghur has *kérek* ‘necessary’ from T *kergek* (with an intermediate form *kerek*, Clauson 1972: 742) and *kéler* ‘will come’ from the verb stem *kel-* ‘to come’.

The Uyghur converb form *yétip* may be derived from either *yat-* ‘to lie’ and *yet-* ‘to reach’, as the converb suffix contains a primary /i/. On the other hand, Uyghur has *kélidu* ‘comes’ (with the shift /e/ > /è/) but *qalidu* ‘remains’ (without the shift /a/ > /è/), as the /i/ of the aspect suffix *idu* is a secondary development from /e/ and /a/ (**keledur*, **qaladur*).⁴

I-umlaut is fully productive in that it is not restricted to lexical units, but also occurs under suffixation if the necessary conditions for umlauting are fulfilled. Loans do not undergo umlauting consistently; hence Uyghur has *héli* ‘a moment ago, in a moment’ (UTIL 5: 581) from Arabic *ḥālī* ‘present’ with umlaut but *hali* ‘its state’ (Uyg *hal* ‘state’ from Arabic *ḥal*) without (UTIL 5: 454–457). An epenthetic /i/ may trigger umlaut, as in *méyiz* ‘kernel, marrow’ < **mayiz* < P *mağz*.

- 3 There is no systematic contrast between /i/ and /i/ in modern Uyghur. The phoneme resulting from the merger of Turkic /i/ and /i/ is represented by /i/ in this contribution.
- 4 The conditions for this process are described exhaustively by Hahn (1991: 51–52), while most of the other sources are less exact.—There is a considerable dialectal variation within the Uyghur area with respect to the question to which degree umlaut is employed. If we compare the data presented on the southern dialects of Uyghur by Jarring (1933: 90–94) with the situation in the modern standard language, it becomes clear that the process is much more advanced in the standard language. This may be both due to the situation in the dialects the Uyghur standard language is based on, and to a diachronic progression.

The Uyghur i-umlaut resembles the i-umlaut of Germanic and Eastern Middle Iranian. It might have been triggered by an Indo-European substratum.

Similar phenomena are also reported for the Uzbek dialects around Namangan, see Wurm 1959: 499 and Rešetov and Šāabduraĥmānov 1978: 38. Sporadically, it occurs in other varieties of Turkic as well. The Turkish lexemes *yeşil* ‘green’ and *yeni* ‘new’ display the same vowel development,⁵ while the neighboring Azerbaidjani has the original *yaşıl* for the former (but also *yeni* for the latter). Standard Uzbek has *sekin* ‘slowly’ (ÖTIL 2: 33–34; likewise Uyghur *sékin*, UTIL 3: 665) from Arabic *sākin* ‘quiet’. Kazakh *bäri* ‘all’, originally *bar* ‘existing’ with the possessive suffix, also displays fronting of /a/ under the influence of a subsequent /i/. Erratic forms like these—although probably resulting from the same process—are purely lexical, while in Uyghur the process is productive (i.e. the mechanism remains active under speech). This is even true within the lexical stem. For example, the intensive derivation of *yěšil*, which is formed by a reduplication of the first syllable, is *yapyěšil* ‘very green’ (UTIL 6: 405) in Uyghur, that is, under the process of derivation the original form *yašil* is taken as the basis. Conversely, the corresponding Turkish form is *yemyeşil*, with the innovative form as the basis for derivation.⁶

Although i-umlaut usually is restricted to open syllables, there are also instances of umlaut in closed syllables: *yěssi* ‘flat’ (UTIL 6: 708) from T *yasi* (Clauson 1972: 973–974). One may speculate that the umlauting occurred prior to the lengthening (“gemination”) of /s/.⁷ Nadžip (1968: 797) records this word as *yěse*, without consonant lengthening, but with an additional vowel lowering in the second syllable (see below).

5 To which the initial /y-/ may have contributed.

6 Note also the diverging final consonant of the reduplication syllable.

7 Likewise in the word *yěssimuq* ‘lentil’. The original Turkic form was probably *yasmuq*, as most modern Turkic languages preserve a similar form, cf. Uzb *yasmiq* (ÖTIL 2: 488), Tur *yasmık*. Clauson (1972: 975) records an Old Uyghur form *yasimuq*, which I would argue to derive from an older form **yasmuq* with an epenthetic vowel /i/. The Modern Uyghur form may either directly originate from Old Uyghur *yasimuq*, or be a contamination from *yasmuq* with the etymologically related adjective *yěssi*.

U-umlaut

U-umlaut is the labialization of low vowels in initial syllables under the influence of a round vowel in the subsequent syllable, i.e. a partial regressive assimilation that adds the feature [+round] to the vowel. This phenomenon has been noted by Pritsak (1959a: 538) for modern Uyghur, see also Johanson 1998: 93. It is extremely frequent, though not productive, in this language and may affect both words of Turkic origin and loans. There is also a limited set of lexemes in which forms with u-umlaut have spread beyond the limits of Uyghur.

An example for this is the Turkic word *etük* 'boot' (Clauson 1972: 50) which appears in Uyghur as *ötük* (UTIL 5: 796), in Ili Salar as *ö:tüx* (Yakup 2002: 148), in Kirghiz as *ötük* (Judaxin 1965: 602), in Altay Turkic as *ödük* (Baskakov and Toščakova 1947: 118), in Qumandī⁸ as *ödük* or *ödek* (Baskakov 1972: 238), in Tuba (Baskakov 1966: 141) and Quu as *ödük* and *ödök* (Baskakov 1985: 182) and in Xakas as *ödük* 'shoe' (Baskakov and Inkižekova-Grekul 1953: 133). On the other hand, Uzbek, the closest relative of Uyghur, has *etik* (ÖTIL 2: 455) with the frequent delabialization of /U/ in non-initial syllables. The same form is attested for Kazakh (Bektaev 2001: 166), Karakalpak (Baskakov 1967: 903, entry *sapogi*) and Kumyk (Bammatov 1969: 379). That the /ü/ of T *etük* has been delabialized at a very early stage in some Turkic varieties can be seen from the Koman (fourteenth century) form *etik* (Grønbech 1942: 969). Further forms without umlaut are Tatar *itek* (TatRS 180), Tuvan *idik* 'shoe' (Tenišev 1968: 201) and Turkmen *ä:dik* (TDS 824). Siberian variants like *ödek* and *ödök* display a vowel lowering in the second syllable (see below).

Another example of a word with spread u-umlaut is Turkic *erük* 'stone fruit' (Clauson 1972: 222), which appears in Uyghur as *örük* 'apricot' (UTIL 5: 807). Uzbek has umlaut as well: *orik* (ÖTIL 2: 510–511) with later delabialization of the /ü/ of the second syllable. The fact that in this lexeme the u-umlaut is quite old is shown by the fact that *örük* <'wrwk> is attested as early as in the Baburname (e.g. 3r13) which was finished in 1530.⁹ Variants with umlaut are also

8 Qumandī (Kumandin), Tuba (Black Forest Tatar) and Quu (Lebed' Tatar) are northern varieties of Altay Turkic.

9 Thackston transcribes this word as *ürük*, which is not at all impossible: After the labial assimilation *erük* > *örük*, /ö/ could have been raised to /ü/, resulting in

present in Kirghiz *örük* (Judaxin 1965: 600), Kazakh *örük* (Bektaev 2001: 374) and Ili Salar *öröx* (Yakup 2002: 148).¹⁰ The variant without umlaut, *erik*, occurs among other things in Koman (Grønbech 1942: 92), Karakalpak (Baskakov 1967: 14, entry *abrikos*), Kumyk (Bammatov 1969: 376), Karachay-Balkar (Tenišev and Sujunčev 1989: 770, meaning: ‘plum’) and Turkish (meaning: ‘plum’).

U-umlaut is less spread in the Turkic word *čaruq* ‘a rough, home-made boot’ (Clauson 1972: 428), which appears in Uyghur as *čoruq* ‘sandal’ (UTIL 2: 686) and Karachay-Balkar as *čuruq* ‘boot’ (Tenišev and Sujunčev 1989: 738), the latter with total assimilation, but in Uzbek as *čäriq* (ÖTIL 2: 379) without umlaut (cf. Tur *çarık*).

The Turkic verb *egsü-* ‘to be/become defective/deficient/lacking’ (Clauson 1972: 117) displays u-umlaut in the Baburname: *öksü-* ‘to lack’¹¹ (in the word form *öksümedi* <’wkswm’dy>, 14r6]). The form with umlauting survives both in Uyghur (*öksü-*, UTIL 5: 837) and Uzbek (*oksi-*, ÖTIL 2: 502).

The Turkic word *qamiš* ‘reed’ (Clauson 1972: 628–629) is *qomuš* in Uyghur (UTIL 4: 291) and *xomus* in Yakut (Slepcev 1972: 496) with an intermediate **qamuš*¹², while Babur Turkic has *qamiš* <q’myš> (288r7) and Uzbek *qamiš* (ÖTIL 2: 547).

The Mongolic word *serigün* ‘cool’ (Khalkha *seriün*) appears in Yakut as *söriün* (Slepcev 1972: 337) and in Uyghur as *sörün* (UTIL 3: 605), but in Uzbek as *sarin* (ÖTIL 2: 23), in Altay Turkic as *seriün* (Baskakov and Toščakova 1947: 128), in Tuvan as *seriin* (Tenišev 1968: 374) and in Turkish as *serin*. Xakas has the variants *sörön* and *siren* (Baskakov and Inkižekova-Grekul 1953: 197, 188), i.e. one vari-

a total assimilation of the vowel of the initial syllable to the vowel of the subsequent syllable. However, taking the Uyghur and Uzbek forms into consideration, *örük* seems the more plausible reading.—The form **ürük* is indirectly attested by Tatar *örek* (TatRS 740). In Kazan Tatar, /u/ and /ü/ have been lowered to /o/ and /ö/, while /o/ and /ö/ have been raised to /u/ and /ü/ (Thomsen 1959: 411). It has not yet been completely understood how exactly this development evolved. The orthographical <e> in the second syllable, by instance, is not the result of a vowel lowering of the type described below, but represents a reduced high front vowel (</i/).—The form *ürük* is also found in the Uyghur dialects of Southern Xinjiang (Jarring 1964: 328).

10 Russian *urjuk* ‘dried apricot’ is probably a loan of the umlauted Turkic form *örük* (cf. Vasmer 3: 189, where no etymology is offered for *urjuk*).

11 Zenker 127 gives meanings like ‘to diminish’.

12 Vowel labialized under the influence of /m/.

ant with and another without umlaut. The underlying form copied into Turkic from Mongol seems to have been **serüün*.

Besides these very few lexical items, u-umlaut seems to be more or less restricted to Uyghur. Here is a list with examples for u-umlaut in Uyghur which is not paralleled in other Turkic languages, with the corresponding Old Turkic forms. Uzbek as the closest relative of Uyghur is quoted as well.

böšük ‘cradle’ (UTIL 1: 515) < T *běšük* (Clauson 1972: 380); Uzbek *beşik* (ÖTIL 1: 108).

tošu- ‘to carry’ (UTIL 2: 248) < T *tašu-* (Clauson 1972: 561); Uzbek *taši-* (ÖTIL 2: 138).

tomur ‘vein, artery’ (UTIL 2: 285) < *tamur*¹³ < T *tamir* (Clauson 1972: 508); Uzbek *tâmir* (ÖTIL 2: 200).

tonu- ‘to know’ (UTIL 2: 291–292) < T *tanu-* (Clauson 1972: 516); Uzbek *tani-* (ÖTIL 2: 117–118).

töšük ‘hole’ (UTIL 2: 360–361) < *tešük* (Clauson 1972: 563); Uzbek *teşik* (ÖTIL 2: 169).¹⁴

tömür ‘iron’ (UTIL 2: 367) < *temür* < T *temir* (Clauson 1972: 508); Uzbek *temir* (ÖTIL 2: 158).

xotun ‘woman, wife’ (UTIL 2: 855–856) < T *xatun* (copied from Sogdian, Clauson 1972: 602–603); Uzbek *xâtin* (ÖTIL 2: 334).

qozuq ‘peg, stake’ (UTIL 4: 248) < *qazuq* < T *qazyuq* (Clauson 1972: 682); Uzbek *qâziq* (ÖTIL 2: 592–593).

qoşuq ‘spoon’ (UTIL 4: 258) < T *qaşuq* (Clauson 1972: 671); Uzbek *qâşiq* (ÖTIL 2: 607).

qoyun ‘melon’ (UTIL 4: 265) < T *qayun* (Clauson 1972: 611); Uzbek *qâvun* (ÖTIL 2: 591); the Baburname has *qavun* <q’wn> (e.g. 5r2).

očuq ‘open, clear’ (UTIL 5: 619–620) < T *açuq* (Clauson 1972: 22); Uzbek *âçiq* (ÖTIL 1: 552).

oruq ‘emaciated, skinny’ (UTIL 5: 637) < T *aruq* (Clauson 1972: 214); Uzbek *âriq* (ÖTIL 1: 542).

13 With labialization of the second vowel triggered by the labial consonant /m/. The Turkish form of this word, *damar*, originates from the variant *tamar* which is also attested in Old Turkic (Clauson 1972: 508).

14 This word survives also in Turkish *deşik* ‘pierced; hole’.

- ozuq* ‘provisions’ (UTIL 5: 645–646) < T *azuq* (Clauson 1972: 283); Uzbek *âziq* (ÖTIL 1: 524).
- ošuq* ‘more than’ (UTIL 5: 651) < T **ašuq*; Uzbek *âšiq* (ÖTIL 1: 555).
- yopurmaq* ‘Blatt’ (UTIL 6: 580) < T *yapuryaq* (Clauson 1972: 879–880); Uzbek *yaprâq* (ÖTIL 2: 484–485)¹⁵.
- yopuq* ‘cover’ (UTIL 6: 583) < **yapuq*¹⁶ < T *yapîy* (Erdal 1991: 215); Uzbek *yâpiq* (ÖTIL 1: 260).
- yoru-* ‘to become bright, to shine’ (UTIL 6: 591–592) < T *yaru-* (Clauson 1972: 956); Uzbek *yâri-* (ÖTIL 1: 261).
- yoruq* ‘light, bright’ (UTIL 6: 588) < T *yaruq* (Clauson 1972: 962–963, Erdal 1991: 255); Uzbek *yâruy* (ÖTIL 1: 262). In modern Uyghur, there is a contrast between *yoruq* ‘light, bright’ (with u-umlaut) and *yêriq* ‘gap’ (UTIL 6: 693, with i-umlaut). The earliest occurrence of the latter (eleventh century) is in the form *yaruq* (Erdal 1991: 255). However, the immediate predecessor for the Uyghur form *yêriq* must have been **yariq* with an unrounded vowel in the second syllable. It is not clear why and at which stage this vowel had been delabialized in an environment in which round vowels are usually preserved. One contributing factor might be a late reflex of the vowel length in the Old Turkic verb stem *ya:r-* ‘to split’ (Erdal 1991: 255). Note that this stem is preserved in modern Uyghur as *yar-* (UTIL 6: 438), while the verb stem underlying *yoruq* is *yoru-*. The Uzbek form *yâruy*—with the round vowel (irregularly) preserved and the final consonant voiced—seems to be a Chaghatayism.
- yošur-* ‘to conceal’ (UTIL 6: 592) < T *yašur-* (Clauson 1972: 979); Uzbek *yašir-* (ÖTIL 2: 491).

Some Arabic and Persian loans undergo this process as well, e.g.

tonur ‘tandoor’ (UTIL 2: 289) < P *tanūr* or *tandūr*.

zörür ‘necessary’ (UTIL 3: 335) < A *ḍarūrī*.

qobul ‘acceptance’ (UTIL 4: 224) < A *qabūl*.

nomus ‘honor’ (UTIL 5: 393) < P *nāmūs*.

15 The variant *yapraq* exists in Uyghur too: UTIL 6: 399.

16 Vowel labialized under the influence of /p/.

Uyghur *hosul* ‘harvest’ (UTIL 5: 546) seems to go back to an intermediate **hasul*, although the Arabic model is *ḥāṣil* (Southern Xinjiang: *ha:sil*, et cetera, Jarring 1964: 115).

U-umlaut turns out to be most common in Uyghur among all Turkic languages. Almost all Turkic words in which u-umlaut operates display it at least in Uyghur. There are however, erratic word forms with something resembling u-umlaut where there is no parallel in Uyghur, e.g. Tuba *sögis* ‘eight’ (Baskakov 1966: 149), the Uyghur cognate being *sekkiz*. There is no obvious etymological motivation for a word form like *sögis* (**seküz*), as the common Turkic form is *sekkiz* (Clauson 1972: 823).

The rounding of Common Turkic /a/ to /â/ which is often observed in Uzbek is not related to the regressive labial assimilation process under description here, as it occurs irrespective of the vowel in the subsequent syllable.¹⁷ Hence, Uzbek has /â/ in *âyiz* ‘mouth’ (ÖTIL 1: 561–562) (T *ayiz*, Uyg *éyiz*) as well as in *yâriq* ‘gap’ (ÖTIL 1: 262) (T *yaruiq*, Uyg *yériq*) and *yâruy* ‘light’ (ÖTIL 1: 262) (T *yaruiq*, Uyg *yoruiq*).

As it becomes obvious from the examples quoted, u-umlaut most frequently occurs in open syllables. Hence, Uyghur has *artuq* ‘excess, more than’ (not **ortuq*)¹⁸, *tekšür-* ‘to check’ (not **tökšür-*) and *yastuq* ‘pillow’ (not **yostuq*). There are however examples to the contrary, like *öksü-* ‘to lack’ from T *egsü-* (see above) and *öçke* ‘goat’ from T *ečkü* (see below).

Vowel raising in non-initial syllables

In Uyghur, low vowels in open non-initial and non-final syllables undergo an extreme degree of reduction, resulting in a reduced central high vowel. This phenomenon, which is fully productive, has been labelled *raising* by Hahn (1991: 52). In written Uyghur, the resulting vowel is indicated by the letter for <i>, e.g. <öylirimizdiki> ‘the one being in our houses’ instead of **öylirimizdeki*. However, this reduced

17 This statement is true both synchronically (where there is rarely a high round vowel in the second syllable in Uzbek) and diachronically.

18 Interestingly, Yakut has precisely the unlauded form *orduq* (from T *artuq*) not permitted in Uyghur (Slepcov 1972: 276).

vowel has a different phonological status than the primary Uyghur /i/, which corresponds to Common Turkic /i/ and /i/. (E.g., the reduced vowel does not trigger i-umlaut.) Neither the reduced vowel nor the primary /i/ affect the palatal harmony status of the word.

In connected speech, word-final low vowels may be raised as well, e.g. /'aniŷi 'oxšaš/ <aniya oxšaš> 'like the mother'. On the other hand, stressed vowels are never raised, for example, <nème qilarini bilmey> 'without knowing what to do' (not *qilirini).

Vowel reduction in Eastern Turki dialects is commented on by Jarring as follows:

“Die reduzierten Vokale sind ein sehr charakteristisches Element im Osttürkischen. Besonders in einem schnell gesprochenen Wortschwall sowie bei Vokalen in schwachtoniger Stellung tritt eine Tendenz zur Vokalreduzierung hervor, die wohl ausserhalb einer Türksprache ohne Gegenstück ist.”

(Jarring 1933: 41)

In modern Uyghur, precisely this *wortschwall* has been taken as the phonetic basis of the standard language.

Reduced vowels in non-initial syllables are common in many Turkic languages. In many cases, the reduced vowels are marked for some phonological oppositions like [±back], [±round], [±high] or all. Uyghur is different in this respect.

All syllables subject to intersyllabic sound harmony must have undergone a previous stage of reduction. In this respect, the Uyghur vowel raising is related to the intersyllabic sound harmony phenomena common to almost all Turkic languages.

Vowel lowering in non-initial syllables

The vowel phenomena referred to so far are strikingly concentrated on the Uyghur area although they do occasionally occur in other varieties of Turkic as well. The phenomenon to be considered next, by contrast, is much more spread across the Turkic world. In some lexemes, high vowels (/i/, /i/, /u/, /ü/) in non-initial syllables become lowered. Depending on the labial harmony rules of each language, the lowering

of the vowel is often accompanied by delabialization of former round vowels.

A well-known example for vowel lowering is the Turkic word *kemi* ‘ship, boat’ (Clauson 1972: 721) which survives with a closed vowel in Oghuz: Tur/Azr *gemi*, Tkm *gä:mi* (TDS 232), Ili Salar *ki:mu* (Yakup 2002: 135), but with an open vowel elsewhere: Uyghur has *keme* ‘ship, boat’ (UTIL 4: 743) with the vowel modification in the first syllable described above under the heading “I-umlaut”, Uzb *kema* (ÖTIL 1: 378), Kaz *keme* (Bektaev 2001: 233), Krg *keme* (Judaxin 1965: 371), Krč *keme* (Tenišev and Sujunčev 1989: 322), Kumyk *geme* (Bammatov 1969: 96), Alt *keme* (Baskakov and Toščakova 1947: 79), Xak *kime* (Baskakov and Inkižekova-Grekul 1953: 75) and Tuv *xeme* (Tenišev 1968: 473). The form *keme* is attested in the Codex Cumanicus (14th century, Grønbech 1942: 137), which proves that the lowered vowel in this word is quite old.

The high vowel of Old Turkic *töpü* ‘hill, top’ (Clauson 1972: 436) has been lowered all across the Turkic world: Uyghur has *töpe* (UTIL 2: 352), Kazakh *töbe* (Bektaev 2001: 446), Kirghiz *döbö* (Judaxin 1965: 198), Altay *töbö* (Baskakov and Toščakova 1947: 154) and Yakut *töbö* (Slepcev 1972: 393). The Oghuz forms *tepe* (Turkish, Azerbaidjani) and *depe* (Turkmen, TDS 248) as well as Uzbek *tepa* (ÖTIL 2: 161) have their first vowel delabialized as a result of regressive assimilation.

The Old Turkic word *yügün* ‘bridle’ (Clauson 1972: 913) has undergone vowel lowering everywhere, too:¹⁹ Uyg *yügen* (UTIL 6: 678), Uzb *yugan* (ÖTIL 2: 462), Kaz *žügen* (Bektaev 2001: 211), Krg *žügön* (Judaxin 1965: 272), Alt *iygen* (Baskakov and Toščakova 1947: 171), Xak *čügen* (Baskakov and Inkižekova-Grekul 1953: 324), Tuv *čügen* (Tenišev 1968: 549).

Uyg *beket* ‘station, stop’ (UTIL 1: 533), Uzb *bekat* ‘station, stop, postal station’ (ÖTIL 1: 97), Krg *beket* ‘postal station’ (Judaxin 1965: 126) and Kaz *beket* ‘station, postal station’ (Bektaev 2001: 99) probably developed from Old Turkic *beküt*, which Clauson (1972: 325) registers as a *hapax legomenon* derived from the verb stem *bekü-* ‘to be firm’.

19 However, Yakut *iitin* (Slepcev 1972: 459) seems to point to an underlying **yügün* rather than **yügen*.

The high vowel of Old Turkic *süñük* ‘bone’ (Clauson 1972: 838–839) survives only in Azerbaidjani *sümüik*. It has been lowered elsewhere: Uyghur *söñek* (UTIL 3: 620), Uzbek *songak* (ÖTIL 2: 97) and *suyak* (ÖTIL 2: 90–91), Turkmen (archaic) *süyek* (TDS 615), Kazakh *süyek* (Bektaev 2001: 424). The contracted form *söök* which occurs in Kirghiz (Judaxin 1965: 659–660) and the Siberian Turkic languages Altay (Baskakov and Toščakova 1947: 131), Tuvan (Tenišev 1968: 386) and Xakas (Baskakov and Inkižekova-Grekul 1953: 196) hints at an older form **söñek* with vowel lowering, as **söñük*, at least in Kirghiz²⁰ and (Southern) Altay²¹, should have developed to **süük* (Tuvan and Xakas are less instructive in this respect).

Old Turkic *yoyun* ‘thick’ (Clauson 1972: 904) maintains its high vowel only in Oghuz (Tur *yoğun*, Tkm *yoǵı:n*, TDS 297), while lowering has taken place elsewhere: Uyg *yoyan* ‘huge, massive’ (UTIL 6: 595), Uzb *yoyān* (ÖTIL 2: 356), Ili Salar *yoyan* (Yakup 2002: 130), Kaz *žuwan* (Bektaev 2001: 207). Kirghiz (Judaxin 1965: 261) and Altay (Baskakov and Toščakova 1947: 56) have *joon* < **yoyan*. The Tuvan (Tenišev 1968: 540) and Xakas (Baskakov and Inkižekova-Grekul 1953: 320) form *čoon* could have developed from either **yoyan* or **yoyun*.

The Uyghur word *čöček* ‘fairytale’ (UTIL 2: 709) is probably related to Old Turkic *sürčük* (Clauson 1972: 845; however, Clauson is not aware of the connection). The elision of /r/ is quite common in Uyghur (e.g. in Uyg *töt* ‘four’ < T *tört*), and the initial /s/ has been assimilated to /č/ as in Uyg *čač* ‘hair’ < T *sač*. Wherever **sürčük* survives, vowel lowering has occurred: Uzb *čopčak*²² ‘riddle, fairytale’ (ÖTIL 2: 387, URS 551), Alt *čörčök* (Baskakov and Toščakova 1947: 181), Qumandī *čörjek*, *čörček*, *čörčök* (Baskakov 1972: 269), Tuba *čörčök* (Baskakov 1966: 166), Quu *čörjök*, *čörčök*, *šörjök*, *šöršök* (Baskakov 1985: 223).

Much less uniform is the picture in the following cases: Old Turkic *toγuru* ‘straight, right’ (Clauson 1972: 473) has become *toγra* (with lowering) in Uyghur (UTIL 2: 248–249) but *toγri* (without

20 Cf. Menges 1959: 442.

21 Cf. Pritsak 1959b: 580.

22 I have no idea about how the /p/ came into being.

lowering) in Uzbek (ÖTIL 2: 260). The high vowel has been preserved in Turkmen *doγri* (TDS 261) and Turkish *doğru*. Some Kipchak languages have preserved the high vowel as well, as Karakalpak *tuwri* (Baskakov 1967: 822, entry *prjamo*) and Tatar *turi* (TatRS 558), while others have a low vowel, as Kazakh *tuwra* (Bektaev 2001: 448), Kirghiz *tuura* (Judaxin 1965: 772–773), Kumyk *tuwra* (Bammatov 1969: 321) and Karachay-Balkar *tuwra* (Tenišev and Sujunčev 1989: 657). The split within Kipchak is already present in Koman, which has both the conservative form *toyru* (Grønbech 1942: 247) and the innovative variant *tuwra* (Grønbech 1942: 258). The Altay lexeme *tuura* ‘breadth, width’ (Baskakov and Toščakova 1947: 159) as well as the Xakas word *toyira* ‘against’ (Baskakov and Inkižekova-Grekul 1953: 229) without doubt also stem from the same Old Turkic word.

Old Turkic *tolu* ‘full’ (Clauson 1972: 491–492) has correspondences with a low vowel in Uyghur *tola* ‘much, very’²³ (UTIL 2: 273), Uzbek *tola* ‘full’ (ÖTIL 2: 246), Kirghiz *tolo* (Judaxin 1965: 746) and Altay *tolo* (Baskakov and Toščakova 1947: 152). Most languages preserve the closed vowel: Karachay-Balkar *tolu* (Tenišev and Sujunčev 1989: 643), Kumyk *tolu* (Bammatov 1969: 319), Kazakh *tolı* (Bektaev 2001: 444), Karakalpak *tolı* (Baskakov 1967: 719, entry *polnyj*), Tuvan *dolu* (Tenišev 1968: 170), Turkish *dolu*, Ili Salar *do:li* (Yakup 2002: 80).

The Old Turkic word *sögüt* ‘tree’ (Clauson 1972: 819) is not very widespread in the modern Turkic languages. It survives with an open vowel in Uyghur *söget* ‘willow’ (UTIL 3: 619) and Kirghiz *sögöt* (Judaxin 1965: 657). Turkish *sögüt* and Turkmen *söwüt* (TDS 605) preserve the closed vowel. Xakas *sööt* (Baskakov and Inkižekova-Grekul 1953: 197) could be based both on **sögüt* and **söget* (cf. Pritsak 1959c: 609). The word does not exist in Uzbek and Kazakh, which use *tal* instead.

What is *yötül* ‘cough’ (Clauson 1972: 889–890) in Old Turkic has a low vowel in Uyghur *yötel* (UTIL 6: 638), Uzbek *yotal* (ÖTIL 1: 355), Kazakh *žötel* (Bektaev 2001: 207), Kirghiz *jötol* (Judaxin 1965: 266) and Yakut *sötöl* (Slepcev 1972: 337). Altay however, the vowels

23 ‘Full’ in Uyghur is *toluq* (UTIL 2: 278–279) with another deverbal noun suffix. The equivalent *tolıq* exists in Uzbek, too (ÖTIL 2: 246–247).

of which often behave similar to Kirghiz, has preserved the high vowel: *ǰödül* (Baskakov and Toščakova 1947: 57). The same is true for Tuvan *čödül* (Tenišev 1968: 542) and Xakas *čidil* (Baskakov and Inkižekova-Grekul 1953: 316).

The word for ‘brain’ is *mēne* in Uyghur (UTIL 5: 279–280) and *miya* in Uzbek (ÖTIL 1: 468). Almost all other Turkic languages in which this word is disyllabic have a high vowel in the second syllable (e.g. Tur *beyin*, see Clauson 1972: 348–349 for further examples). The Proto-Turkic form of this word is reconstructed as **bēni* by Clauson. While both Uyghur and Uzbek have lowered the second vowel, the closed /è/ of the first syllable in Uyghur could possibly be attributed to an i-umlaut (*meñi* > *mēñi*) prior to the vowel lowering (the original Turkic closed /è/ is usually not preserved in Uyghur, e.g. T *bēr-* ‘to give’ > Uyg *ber-*).

The Turkic word *böri* ‘wolf’ (Clauson 1972: 356) displays vowel lowering in Uyghur *böre* (UTIL 1: 513) and Yakut *börö* (Slepcov 1972: 78), but maintains the high vowel elsewhere, e.g. Uzb *bori* (ÖTIL 1: 164), Kaz *böri* (Bektaev 2001: 108), Krg *börü* (Judaxin 1965: 153), Alt *börü* (Baskakov and Toščakova 1947: 34), Tuv *börü* (Tenišev 1968: 118), Ili Salar *bü:ri* (Yakup 2002: 65).

Uyghur *tülke* ‘fox’ (UTIL 2: 407) corresponds to Old Turkic *tilkü* (Clauson 1972: 498–499),²⁴ Virtually all languages except Uyghur preserve the high vowel: Uzbek has *tulki* (ÖTIL 2: 222), Kazakh *tülki* (Bektaev 2001: 452), Kirghiz *tülkü* (Judaxin 1965: 780), Altay *tülkü* (Baskakov and Toščakova 1947: 161), Xakas *tülgü* (Baskakov and Inkižekova-Grekul 1953: 242), Ili Salar *tülgü* (Yakup 2002: 170) and Azerbaidjani *tülkü*. Tuvan *dilgi* (Tenišev 1968: 162) as well as Turkmen (TDS 649) and Turkish *tilki* preserve the unround vowel of Old Turkic in the first syllable, but have /i/ in the second syllable due to labial harmony. Only in Qumandı, forms with low vowel (*tülge*, *tülgö*, *tülke*) are recorded besides forms with high vowel (*tülgi*, *tülkü*) (Baskakov 1972: 258).

Uyghur has *qoza* ‘lamb’ (UTIL 4: 246) for Old Turkic *quzi* (Clauson 1972: 681). A first step of vowel lowering is visible in the Ili

24 Labialization of the vowel of the first syllable occurs frequently in this item. Already Babur Turkic (sixteenth century) has *tülkü* <twlkw> (71r5-6). (The word *tülkü* occurs thrice at this place, the third occurrence is misspelled as *tüklü*.)

Salar form *Goza* (Yakup 2002: 109), although the process is not yet completed in this language. All other languages preserve the high vowel, as Uzbek *qozi* (ÖTIL 2: 630), Kazakh *qozi* (Bektaev 2001: 288), Kirghiz *qozu* (Judaxin 1965: 392) and Turkish *kuzu*. The Baburname, incidentally, has *qozi* <qwzy> (164r12) with a high vowel as well.

In the items mentioned so far, vowel lowering can be observed in at least one language besides Uyghur. However, there are a lot of instances in which this phenomenon is restricted to Uyghur:

burya ‘auger, drill, gimlet; wind instrument made from the horn of an animal’ (UTIL 1: 494²⁵) < T *buryuy* (Doerfer 2: 286–288; Clauson 1972: 361). Interestingly in Uzbek, a split has occurred between the regular *buryi* ‘auger, drill, gimlet’ (ÖTIL 1: 154; URS 85) with delabialization of /u/ in the second syllable and *buryu* ‘pipe, horn’ (URS 85); ‘ancient wind instrument’ (ÖTIL 1: 154) with the labial vowel preserved. The latter form is either an archaism or has been taken into the standard language from a different dialect. The word survives with various meanings in Kaz *buryi* ‘drill’ (Bektaev 2001: 114), Krg *buryu* ‘drill’ (Judaxin 1965: 160) and Ili Salar *buryu* ‘ox horn’ (Yakup 2002: 65). In Turkish, *burgu* ‘auger, gimlet; corkscrew; screw; peg to tighten a string in stringed instruments; torture screw; kind of trumpet’ (Redhouse 201) exists side by side with the etymologically related item *boru* ‘pipe, tube; horn, trumpet’ (cf. below, entry *mora*).

Although Doerfer (2: 288) rejects a connection to Mongolian *büriy-e/büriyen* ‘trumpet, horn’ (Lessing 1960: 149)²⁶ as “lautlich unmöglich”, it is my conviction that the Mongolic item has been copied from Turkic *buryu*, especially if we take the alternative spelling *bürege* (Lessing 1960: 148) into consideration.²⁷ The

25 I *kančiliq nefit, ximiye sana'iti ge'ologiyilik qidiriş ve şu qatarliq işlarda qeziş, kolaş, teşiş üçün iştirilidiyan üsküne; perme. II kala, tay tekisi qatarliqlarniy müngüzidin yasilidiyan, bir xil qedimiy çalğu esvabi.*

26 Khalkha *büree(n)* ‘trumpet, horn’ (Vietze 1988: 67; BAMRS 307), Kalmuck *büree* ‘Blasinstrument, Trompete’ (Ramstedt 1935: 67).

27 The only possible objection against the assumption of a loan of Turkic *buryu* into Mongolian in the form *bürege* is the change of palatal harmony (back > front). However, variation in palatal harmony (in both directions) is not uncommon even within Turkic; cf. Old Turkic *müyüz/mütüz* (< *bütüz,

Tuvan form *büree* ‘trumpet (musical instrument)’ (Pal’mbax 1953: 616, entry *truba*) is without doubt a loan from Mongolic.

buya ‘deer’ (UTIL 1: 502–503) < Mongolian *buyu*; cf. Babur Turkic *buyu* <bwǰw> (4a10), Uzb *buyu* (ÖTIL 1: 156). There is a striking resemblance of Uyghur *buya* and Khalkha Mongolian *buya*; however, the word is certainly not borrowed from Khalkha; rather, the low vowel in Uyghur *buya* is the result of an internal Turkic development, while the sound written <a> in the second syllable of the Khalkha word reflects an internal Mongolic development²⁸ (Posch 1964: 124).

tüge ‘millet’ (UTIL 2: 399) < T *tügi* (Clauson 1972: 478). Does not exist in Uzbek, which uses *tariq* or *sok* instead (both *təriq* and *sök* exist in Uyghur as well).

čoqqa ‘summit, top’ (UTIL 2: 688); Uzb *čoqqi* (ÖTIL 2: 389).

čine ‘porcelain bowl’ (UTIL 2: 790) < P *čīnī* ‘Chinese, porcelain’; cf. Uzb *činni* ‘porcelain’ (ÖTIL 2: 370).

dora ‘medicine, remedy’ (UTIL 3: 94) < P *dārū*.

This word is an example of u-umlaut and vowel lowering occurring in one word. It is clear, that the labialization /a/ > /o/ in the initial syllable must have preceded the lowering /u/ > /a/ in the second syllable. Uzbek has *dāri* (ÖTIL 1: 234) with a delabialized high vowel in the second syllable. The Kazakh form *dāri* (Bektaev 2001: 141) obviously results from a fronting (i-umlaut) of /a/ after delabialization of the second vowel (*dārū* > *dari* > *dāri*).

döše ‘wooden chopping board’ (UTIL 3: 129; Nadžip 1968: 447) < M *döši* ‘anvil’ (Lessing 1960: 269; cf. Yakup 2005: 448).

qošağ ‘folk song’ (UTIL 4: 253) < T *qoşuğ* (Clauson 1972: 671); Uzb *qošiğ* (ÖTIL 2: 643).

qoşna ‘neighbour’ (UTIL 4: 257) < T *qonşī* (Clauson 1972: 640) with metathesis; Uzb *qoşni* (ÖTIL 2: 644); cf. Tur *komşu*.

Clauson 1972: 352) ‘Horn’, Uyghur *müñgüz*, Kazakh *müyiz*, Kirghiz *müyüz*, Altay *mütüs* vs. Turkish *boynuz*, Tuvan *müyis* (front > back); Old Turkic *bīñ* ‘thousand’, Uyghur *miñ* (contrary to the first impression, this word is back: e.g. the plural is *miñlar*), Kazakh *müñ*, Tuvan *muñ* vs. Kirghiz *miñ*, Turkish *bin* (back > front); Old Turkic *yėgirmi* ‘20’, Uyghur *yigirme*, Uzbek *yigirma*, Turkish *yirmi* vs. Kazakh *žiyirma*, Kirghiz *jiyirma* (front > back).

28 On the other hand, although the sound changes in Turkic and Mongolic have lead to slightly different results in terms of phonetics, we may note a certain similarity in terms of sound development in the Turkic-Mongolic contact area.

qəza ‘horse meat sausage’ (UTIL 4: 378) < *qəzi < *qazi < T qazi ‘the fat on a horse’s belly, a sausage made from such fat’ (Clauson 1972: 681); Uzb *qazi* (ÖTIL 2: 536).²⁹ In this word, both i-umlaut and vowel lowering can be observed.

keke ‘adze’ (UTIL 4: 541³⁰) < *kerke < T kerki (Clauson 1972: 741). This word seems to survive in Uyghur only.³¹

kötek ‘stump; tear-off slip, counterfoil’ (UTIL 4: 620³²) < T ketük ‘notch, chip’ (Clauson 1972: 702). This is a deverbal noun from ket- ‘to notch/chip/gash’ (Clauson 1972: 700). ketük has become gedik ‘gap; notch’ in Turkish, with the usual phonological developments. The Uyghur form kötek displays both u-umlaut (ketük > *kötük) and vowel lowering (*kötük > kötek).

külke ‘laughter’ (UTIL 4: 707–708) < T külgü (Clauson 1972: 718); Uzb *kulgi* (ÖTIL 1: 404), Kaz *külki* (Bektaev 2001: 257), Krg *külkü* (Judaxin 1965: 463), Xak *külki* (Baskakov and Inkižekova-Grekul 1953: 96), Ili Salar *külgü* (Yakup 2002: 137).

kirpe ‘hedgehog’ (UTIL 4: 759) < T kirpi (Clauson 1972: 737); Uzb *kirpi*³³ (ÖTIL 1: 388; URS 214), Krg *kirpi* (Judaxin 1965: 389), Kaz *kirpi* (Bektaev 2001: 259).

mora ‘chimney’ (UTIL 5: 175). A loan from Persian *mōrī* ‘an earthen pipe joined to an aqueduct; a watercourse, channel, gutter’ (Steingass 1892: 1343), which in turn is probably a loan from Turkic *bori/boru* ‘pipe, tube’, which is derived from Old Turkic *bur̄yu*, see above. Steingass transcribes the Persian word as *mūrī*, but the Tadjik form *mōrī* ‘chimney, smoke outlet’ (TRS 250) as

29 Clauson (1972: 681) erroneously notes that this word does not survive in the southeastern group of Turkic (“s.i.a.m.l.g. except SE, SW”).

30 *tiyi destisige ornitilidiyan čepiš, yonuš qorali*.—Nažip (1968: 640) gives the following meanings: I *rezec*; II 1. *kirka*; 2. *toporik mestnogo izgotovlenija*; 3. *nož dlja rubki solomy i klevera*.

31 Russian *kirka* ‘pick’ very much looks like a loan of Turkic *kerki* (possibly even the variant with lowered vowel). The word must have been quite widespread in pre-modern Turkic and is even recorded in Ottoman dictionaries (Redhouse 641: *kerki* ‘large ax’). However, Vasmer 1: 560–561 mentions Ottoman Turkish *kürek* ‘shovel, paddle’ as a possible model for the Russian word.

32 1. *derexnij késilgendin keyinki yéltiz bilen qélip qalyan tövenki qismi*; 2. *di’ametri čon, tom, qisqaraq yayač*; 3. *talon ve ispatlarni yézip bergende, talon ve ispatniñ yézip bergüčide qélip qalidiyan qismi*.

33 According to the Uzbek dictionaries, *kirpi* is a dialect form, the standard form for ‘hedgehog’ being *tipratikan*.

well as the loaned forms in Turkic bear witness to the *wāw-i majhāl*³⁴. In Uyghur, the second vowel is lowered. The word exists in Uzbek as *mori* ‘chimney’³⁵ (ÖTIL 1: 490) and in Kirghiz as *mor* ‘chimney’, southern dialects *mooru* (Judaxin 1965: 532). For the Uyghur dialects of Southern Xinjiang, Jarring (1964: 198) notes the variants *mori* and *mo:re* ‘chimney’. The latter form will be commented on below.

here ‘bee’ (UTIL 5: 498) < T *ari*, with prothetic /h/; Uzb *ari* (ÖTIL 1: 53). For unknown reasons, this lexeme has front vowels in Uyghur.

hoyla ‘courtyard’ (UTIL 5: 551); Uzb *hāvli* ‘courtyard’ (ÖTIL 2: 702); Tkm *hovli* (TDS 714); cf. Tur *avlu* ‘courtyard’. The Tadjik form of this item is *havli* ‘courtyard’ (TRS 494), written <ḥwly> in Arabic letters (TRS 646). This lexeme is very interesting in terms of etymology. It is very likely that all the variants noted here (all carrying the same meaning) are derived from one common origin. Jarring (1964: 122) claims that the Eastern Turki word *hojli/hojle/hojla* originates from an Arabic/Persian word <ḥwly>. This word is in fact attested in Farsi (Junker and Alavi 1965: 257), Afghan Persian (DRS 310, with a variant *havili* <ḥwyly>) and Tajik (TRS 646). Steingass does not mention this word. Arabic has no word <ḥwly> in a meaning that makes a direct borrowing into Persian probable, but the Persian word could be reasonably related to Arabic *ḥaula* <ḥwl> ‘around’ (Wehr 1985: 309) with Persian *yā-yi nisbat*, originally meaning something like ‘surroundings’, which could have acquired a more narrow semantics of ‘surroundings of a house’ > ‘courtyard’. However, Redhouse (98, entry *avlu*) and Zenker (397, entry *ḥwlv/ḥwly*) claim this word to be of Greek origin, which would relate it to Greek *αὐλή* ‘court’ (cf. Latin *aula*, German *Aula* and

34 I.e. the long vowel phoneme /ō/ that has merged with /ū/ in the western varieties of Persian.

35 Interestingly, Uzbek has a de-nominal verb *moralā-* ‘to peer’, ‘to peep’ (*podsmatrivat*, *podgljadyvat* (čerez čto-l.); *vygljadyvat*, URS 277; *Tosiq, tirqış, teşik aŕqali qaramâq*, ÖTIL 1: 490), without doubt derived from *mori*, with the same vowel lowering as in Uyghur *mora*. A very similar case of vowel lowering in a derivation is the Ottoman Turkish word *borazan* ‘trumpeter’ (Redhouse 190), a de-nominal noun derivation from the word *boru* already mentioned.

the English adjective *aulic*). The latter possibility seems much more plausible to me. In this case, the Greek word *αύλη* would have been borrowed into Turkic in the form **avli*. While in Turkish, the word was first accommodated to the rules of palatal harmony (> *avli*) and after that to labial harmony (rendering *avlu*, with the second vowel rounded under the influence of the labial consonant /v/), the word received a prothetic /h/ in Central Asia. In Uyghur, the /i/ was lowered to /ɛ/ and later adapted to the rules of palatal harmony (all three stages are noted by Jarring 1964). Regarding the question whether the word entered South East Turkic via Persian or was borrowed into Persian from Turkic, I would argue for the latter possibility, as innovative forms with a prothetic /h/ are typical for Southeastern Turkic, but not so for Persian. The orthography with <ḥ>, which usually points to words of Arabic—not Persian or Turkic—origin, could result from an erroneous etymological identification (i.e. a contamination) with Arabic *ḥaula* ‘around’, *ḥawālī* ‘vicinity’, et cetera.

oʻya ‘poison’ (UTIL 5: 652) < T *ayu* (Clauson 1972: 78) via an intermediary form **oʻyu*. This is another example of u-umlaut and lowering occurring in one word. This word survives in Uzbek as *āyu* (ÖTIL 1: 564), in Kirghiz as *uu* (Judaxin 1965: 809), in Kazakh as *uw* (Bektaev 2001: 457) and in Xakas (Baskakov and Inkižekova-Grekul 1953: 127), Tuvan (Tenišev 1968: 321) and Quu (Baskakov 1985: 181) as *oo*. Ili Salar *a:yu* (Yakup 2002: 34) preserves the Old Turkic state.

öçke ‘goat’ (UTIL 5: 798) from Old Turkic *ečkü* (Clauson 1972: 24) also combines u-umlaut and vowel lowering. Umlaut has also occurred in Tuv *öškü* (Tenišev 1968: 342) and Xak *öskī* (Baskakov and Inkižekova-Grekul 1953: 137). Most Turkic languages have delabialized the second syllable: Uzb *ečki* (ÖTIL 2: 456–457), Kaz *eški* (Bektaev 2001: 167), Kkp *eški* (Baskakov 1967: 345, entry *koza*), Krg *ečki* (Judaxin 1965: 969), Kumyk *ečki* (Bammatov 1969: 380), Krč *ečki* (Tenišev and Sujunčev 1989: 779), Alt *ečki* (Baskakov 1964: 248, entry: *koza*); the Oghuz form *keči* (with metathesis) displays the same change. Ili Salar *ešgu* (Yakup 2002: 90) is again closest to Old Turkic. Also in *öçke*, the umlauting must have preceded the lowering (*ečkü* > *öčkü* > *öçke*).

- yéza* ‘village, countryside’ (UTIL 6: 700–701³⁶) < T *yazı* (Clauson 1972: 984); Uzb Ø. Cognates are Krg *ǰazı* ‘broad, wide’ (Judaxin 1965: 212) and Xak *čazi* ‘field, steppe’ (Baskakov and Inkižekova-Grekul 1953: 306). This lexeme contains i-umlaut and vowel lowering: *yazı* > *yézi* > *yéza*.
- yéya* ‘disaster, mayhem’ (UTIL 6: 712³⁷) < T *yaǰı* ‘enemy’ (Clauson 1972: 898). The Uyghur form displays both i-umlaut (*yaǰı* > *yéǰı*) and vowel lowering (*yéǰı* > *yéya*). Babur Turkic has preserved the original form: *yaǰı* <y’ǰy> ‘foe’ (e.g. 218r1). Xak and Tuv *čaa* ‘war’ (Baskakov and Inkižekova-Grekul 1953: 304; Tenišev 1968: 503) are contracted from *yaǰı*. Uzbek has the Kipchak form *yâw* ‘enemy, disaster’ (ÖTIL 1: 252), which is also found in Alt *ǰuu* ‘war, battle’ (Baskakov and Toščakova 1947: 58), Tat *yaw* ‘foe’ (TatRS 719), Kaz *žaw* ‘foe’ (Bektaev 2001: 189), Krč *ǰaw* ‘foe’ (Tenišev and Sujunčev 1989: 235–236) and Krg *ǰoo* ‘foe’ (Judaxin 1965: 260). The Kipchak form is attested in modern Uyghur as well: *yaw* ‘foe’ (UTIL 6: 521³⁸). Here, two etymologically identical forms have assumed different meanings.

Vowel lowering in final syllables is also observed in three Uyghur numerals:

- yigirme* ‘twenty’ (UTIL 6: 770) < T *yégirmi* (Clauson 1972: 915), cf. Tur *yirmi*. Corresponding forms with lowered vowels exist in various Turkic languages, e.g. Uzb *yigirma* (ÖTIL 1: 347), Kaz *ǰıyırma* (Bektaev 2001: 200), Kir *ǰıyırma* (Judaxin 1965: 278) and Yak *süürbe* (Slepcov 1972: 352).
- yette* ‘seven’ (UTIL 6: 537) < T *yètti* (Clauson 1972: 886); Uzb *yetti* (ÖTIL 1: 251); cf. Yak *sette* (Slepcov 1972: 370).
- alte* ‘six’ (UTIL 1: 159) < T *altı* (Clauson 1972: 130); Uzb *âlti* (ÖTIL
- 36 1. *ahalisi asasen dehqančılıq bilen şuyullinidiyan ǰay, mehelle, rayon; qışlaq; sehra;*
2. *memliketimizniñ memuriy rayon bölünmisidiki asasiy qatlam teşkiliy orgini. adette nahiye yaki nahiye derǰilik organniñ başquruşida bolidu. uniñ başquruşida yene kentler bolidu.*—Nadžip (1968: 797) gives the meanings *derevnja, selo* (i.e., ‘village’).
- 37 *bala-qaza, apet, ǰeǰgi-ǰedel, uruş-ǰowǰa.*
- 38 *uruş, ǰeǰdiki qarşı terep; düşmen, reqib.*—Nadžip (1968: 798) mentions only the form *yéya* ‘bedstvie’ (‘disaster, affliction’).

1: 534); cf. Yak *alta* (Slepcev 1972: 39). The non-harmonic form of this item suggests that it represents a case of recent lowering.

In some Uyghur dialects, vowel lowering seems to be even more widespread than in the standard language. For the dialect of Khotan (Uyg *Xoten*), forms like *köñel* for Standard Uyghur *köñül* ‘heart’, *bügen* instead of SUyg *bügün* ‘today’, *toxa* instead of *toxu* ‘chicken’ and *oyal* in place of *oyul* ‘son’ are reported (Sayim 2007: 11).³⁹ On the other hand, some dialects have more conservative forms, e.g. *büril/böri* ‘wolf’ (Jarring 1964: 62, cf. Yakup 2005: 443; SUyg *böre*), *toyrı* ‘straight’ (Jarring 1964: 309) and *tüyrü* (Yakup 2005: 471; SUyg *toyra*), *tülki* ‘fox’ (Jarring 1964: 318; SUyg *tülke*), *da:ru*; *do:re* ‘medicine, drug, spice, spices’ (Jarring 1964: 81; SUyg *dora*), *qozı* ‘lamb’ (Jarring 1964: 253; SUyg *qoza*), *qošni* ‘neighbour’ (Jarring 1964: 253; SUyg *qošna*), *kerki* ‘adze’ (Jarring 1964: 167; SUyg *keke*), *külgü* ‘laughter’ (Jarring 1964: 179; SUyg *külke*), *kirpi* ‘hedgehog’ (Jarring 1964: 174; SUyg *kirpe*), *morı/mo:re* ‘chimney’ (Jarring 1964: 198; SUyg *mora*), *miñi* ‘brain’ (Jarring 1964: 196; SUyg *mēñe*), *hojli/hojle* ‘courtyard, yard, house, palace’ (Jarring 1964: 122; SUyg *hoyla*), *ayu* ‘poison’ (Jarring 1964: 14; SUyg *oya*), *ečkü* ‘goat’ (Jarring 1964: 39; SUyg *öčke*), *jazi/jæzi/je:zi* ‘country, countryside’ (Jarring 1964: 151; SUyg *yéza*) and *jæñil/jiñi* ‘enemy, rebellious’ (Jarring 1964: 152; SUyg *yéya*).

While vowel lowering of the type described above is very common in Uyghur words, there are cases where this sound change occurs in other Turkic languages while it is absent in Uyghur. The Old Turkic word *boγuz* ‘throat’ (Clouston 1972: 322) has a high vowel in many Turkic languages, e.g. Tur *boğaz* ‘throat’, Kaz *buwaz* ‘pregnancy’ (Bektaev 2001: 109). Krg *booz* ‘pregnant’ (Judaxin 1965: 144) and Alt *boos* ‘pregnant’ (Baskakov and Toščakova 1947: 33) testify to an underlying form **boγaz* as well, otherwise these items should appear as **buuz/buus* respectively. On the other hand, Uyghur *boγuz* ‘throat, fodder’ (UTIL 1: 468) and Uzbek *boyiz* ‘throat’ (ÖTIL 1: 167–168) preserve the original structure of the word. Uzbek

39 What is *yéssi* ‘flat’ in the Standard Uyghur of China (< T *yasi*) has been standardized as *yése* in Soviet Uyghur (Nadžip 1968: 797), reflecting a slightly different dialectal basis.

additionally has a word *boʻyâz* ‘pregnant (of animals)’ (ÖTIL 1: 169) of the same Turkic origin, but possibly borrowed from Kipchak.

The Turkic word *yaŋi* ‘new’ displays vowel lowering in a number of Kipchak languages, e.g. Tatar *yaŋa* and Kazakh *žaña*, and also in Yakut *saŋa*, but not Uyghur, where it is *yèŋi*.⁴⁰

Another word for ‘courtyard’ (besides Uzb *hâvli*/Uyg *hoyla*, see above) in South East Turkic is Uzbek *qora* (ÖTIL 2: 639)/Uyg *qoru* (UTIL 4: 242).⁴¹ The exact etymological affiliation of this word is not clear. One feels, of course, tempted to relate it to T *qoriy* ‘enclosure’ (Clauson 1972: 652; cf. Tur *koru* ‘grove’), which is a nominal derivation from the verb *qori-* ‘to protect’ (Uzb *qori-*, Uyg *qoru-*), but this word survives regularly as Uyg *qoruq* (UTIL 4: 243, entry *qoruq* II) and Uzb *qoriq* (ÖTIL 2: 640) with meanings like ‘field; shelter, cover, et cetera’. Both form and meaning of *qora/qoru* however, make a relation to the verb *qori-* obvious. We could speculate that *qoralqoru* are the remnants of an otherwise unattested Turkic noun **qori* ‘shelter, protection’, of which *qori-* is a zero-derivation (as in *köç* ‘migration’ > *köç-* ‘to migrate’, *tüz* ‘level’ > *tüz-* ‘to level’ and *yar* ‘cleft’ > *yar-* ‘to cleave’). In this case, Uzb *qora* would display vowel lowering in the second syllable, while Uyg *qoru* would represent a more conservative stage.

In Yakut, vowel lowering occurs in a couple of inflectional morphemes, e.g. the 3rd person singular possessive suffix in *-(t)E* (T - *(s)i*) and the 3rd person singular preterite in *-DE* (T - *DI*).

Origin and development of umlaut and vowel lowering

Umlaut

In his chapter on modern Uyghur in the first volume of the *Fundamenta*, Pritsak (1959: 538) explains umlaut as an influence of the stressed second syllable on the unstressed first syllable:

“Das ursprüngliche, betonte enge *i/i* der zweiten Silbe verändert

40 In spoken Uyghur however, also in the spoken standard language, the *i/i* of *yèŋi* can be realized as a mid central vowel /ə/.

41 The words are not totally synonymous, *qoralqoru* being also used for a pen, i.e. an enclosure for animals.

das breite *a/ä* der unbetonten offenen Silbe [...] in *e*. [...] Das ursprüngliche betonte enge *u/ü* der zweiten Silbe verändert das breite *a/ä* der ersten offenen Silbe [...] in *o/ö*.”

However, we need not take it for granted that the first syllable was unstressed. While Turkic stress in general is only insufficiently explored, almost nothing is known about stress on the historical stages of Turkic (cf. Räsänen 1949: 32–41). Umlaut does not require unstressed initial syllables. The Germanic umlaut, for instance, affects the *stressed* syllable (German *Buch*–‘*Bücher*’; Norwegian *bok*–‘*bøker*’). If Pritsak’s assumption on the former stress configuration in Uyghur is true, the situation is completely different today. Today, the umlauted vowel often carries an extremely emphatic stress while the subsequent vowel which originally must have triggered the umlaut is often unstressed and sometimes reduced to nothing.⁴² The umlaut is often accompanied by a lengthening of the umlauted vowel; hence umlaut cannot be accounted for in the context of vowel *reduction*. On the other hand, there are also cases where not the umlauted vowel, but the vowel of one of the subsequent syllables (which need not be the umlaut trigger), is stressed. For instance, in the phrase <*yéñi yéza qurayli*> [ʃe·ŋə ʃe·zə qʊˈrɑiɭ] ‘let’s create a new countryside’, the umlauted vowels are both stressed and lengthened, while the umlaut trigger is extremely reduced (In *yéza*, the original umlaut trigger /i/ has been lowered to /a/. However, this change does not surface in the absence of a pause, see above). In the phrase <*bir töšük éçiliptu*> [bʲr ˈtʰø·ʃk e·tʃʲˈlɪptʰö] ‘a hole became open’, the umlaut trigger in *töšük* disappears completely, while the umlauted vowel both carries an emphatic stress and is lengthened. The umlauted vowel in the word *éçiliptu* does not carry the main stress but is slightly lengthened. However, the stress does not rest on the umlaut trigger either, which is reduced, but on the syllable *subsequent* to the umlaut trigger. In so far as umlaut is productive today (that is, i-umlaut which involves an extant primary /i/), it appears to be a process completely detached from stress questions.

42 This is true and again even reflected in writing, e.g. in *értmaq* [sic!] ‘to wipe, to clean’ (UTIL 6: 76) < T *arüt*- (Clauson 1972: 207); cf. Uzb *art*- (ÖTIL 1: 55), Turkish *arüt*-. Soviet Uyghur has *yésnuq* ‘lentil’ (Nadžip 1968: 797) < *yasimūq* (Standard Uyghur of China: *yéssimūq*).

Besides the natural tendency of mutual interference of sounds, the predictable and in part obligatory umlaut patterns of Uyghur may possibly also be motivated by substratum influence of Eastern Middle Iranian, in which similar processes are encountered as well (Sims-Williams 1989: 168).⁴³ Divergent stress patterns at earlier stages may (but need not) have contributed to the rise of umlaut in Uyghur as well.

As we have seen above, in front vowel words the sound process goes even further, as /e/ in open initial syllables is raised to /è/ even if there is no /i/ in the subsequent syllable. This is probably in analogy to a genuine i-umlaut which was already firmly established in the language.

Vowel lowering

Contrary to umlaut, vowel lowering affects non-initial unstressed high syllables. At the first stage, the vowel is reduced. This reduction in terms of quantity is accompanied by an indifferent pronunciation in terms of quality. This stage is reflected for example in the Ili Salar word *Gožə* 'lamb' < T *quzi*. This stage is comparable with the Uyghur vowel raising, which is also basically a reduction in quantity and quality (but of syllables with a *low* vowel). This stage of indifference (*Indifferenzstufe*, Johanson 1979: 70) can function as a starting point for a recategorization of the vowel with respect to certain phonetic features. This recategorization evolves in two steps. In Uyghur at least, maybe generally, the first step of recategorization concerns the opposition [\pm open]. Originally high vowels are lowered. This is testified to by transitional unharmonic forms like Eastern Turki *do're* 'medicine', *mo:re* 'chimney', *hojle* 'courtyard' and the Standard Uyghur word *alte* 'six'. In a second step the forms are harmonized according to the opposition [\pm back], resulting in forms like *dora*, *mora* and *hojla* as well as Yakut *alta*. Languages in which low vowels

43 However, Mongolic languages have i-umlaut as well. This is especially striking in Oirad (also spoken in Xinjiang), which has e.g. *ädl* 'equal' (Ramstedt 1935: 21; Todaeva 2001: 45) < *adil*, cf. Written Mongolian *adali*, and *mörn* 'horse' (Ramstedt 1935: 266; Todaeva 2001: 238) < *morin*. In Mongolic, a significant Iranian substratum does not seem probable.

are subject to labial harmony may add the feature [+round] in a final step, e.g. Kirg *tolo* 'full' < *tola* < *tolu*. In Uyghur, the low vowels resulting from vowel lowering are raised again if the conditions for raising (see above) are fulfilled.

Hence, vowel lowering starts as a merely phonetic process of reduction of high unstressed vowels, which first bears no systematic implications. Only on a later stage, the vowel changes become systematicized. The result of vowel lowering may be phonologically relevant, as it can be seen from minimal pairs as Uyg *qoşuq* 'spoon' vs. *qoşaq* 'folk song'. However, in minimal pairs like this it is obviously not the opposition [±high] which is phonologically significant, but the opposition [±round], as the opposition [±high] is neutralized in positions where the syllable becomes open and non-final (*qoşuqi* 'his spoon' vs. *qoşiqi* 'his folk song').

Summary

While vowel assimilations usually operate progressively in Turkic ("vowel harmony"), regressive vowel assimilations do occur as well. The Uyghur i-umlaut is especially famous and well-documented as it is a fully productive sound process and one of the most striking features of Uyghur phonology. Additionally, Uyghur has also u-umlaut which has received less attention in turcological literature, probably due to the fact that it is non-productive and affects selected lexical items only.

Both umlaut types also occur sporadically outside the Uyghur area as a non-productive phenomenon. While in the Turkish words *yeşil* 'green' and *yeni* 'new' the preceding /y-/ may have contributed to the change, Kazakh *bäri* 'all' and *däri* 'medicine' as well as Uzbek *sekin* 'slowly' are unambiguous instances of stray i-umlaut.

A few lexical items with u-umlaut have gained a comparatively broad distribution, as *ötük* 'boot', *örük* '*stone fruit' and various forms of **öçkü* 'goat'. Even these however, have not reached very far to the west of the Turkic world.

Turkic umlaut phenomena do not seem to require the umlauted vowel to be unstressed.

Conversely, both vowel raising and vowel lowering result from

the reduction of an unstressed vowel. While the Uyghur raising is a fully productive process which affects low vowels, vowel lowering obviously affects selected lexical or grammatical items only. Lowering in lexical items is much more spread across the Turkic world than the other sound processes mentioned in this contribution. Naturally, vowel lowering affects originally high vowels. Typical words displaying this process are *keme* 'ship', *yigirme* 'twenty' and *yoyan* 'huge, massive'. Reduction processes like these seem to have paved the way for the emergence of vowel harmony.

While both umlaut and vowel lowering do occur across the Turkic world, they are strikingly concentrated in the southeasternmost corner of the Turkic world, i.e. in Uyghur, the vowel system of which seems to have been especially vulnerable, and which obviously is especially innovative with respect to vowel changes.

Abbreviations

A	Arabic
Alt	Altay Turkic
Azr	Azerbaijani
Kaz	Kazakh
Krč	Karachay-Balkar
Krg	Kirghiz
M	Mongolian
P	Persian
SUyg	Standard Uyghur
T	Turkic
Tkm	Turkmen
Tur	Turkish
Tuv	Tuvan
Uyg	Uyghur
Uzb	Uzbek
Xak	Xakas
Yak	Yakut

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