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Remarks on the usefulness of different types of transcription, with a particular regard to Turkic comparative studies

The article attempts to determine what kind of transcription is best suited for (Turkic) comparative studies. Five questions are asked: what are the features of an ideal transcription, what level of abstraction is most useful, what notation system is most practical, and is it possible for a single transcription to encompass the entire Turkic family. Ultimately, a set of basic rules is proposed together with a small exemplification.

0. Rationale and acknowledgements

The sound systems of the Turkic languages appear at first sight to be exceptionally congruent, symmetric and regular. However, this is not true of the transcription(s) and, even more so, the orthographies which are used to record them. The practice of transcription in Turkology differs to some degree from one language to another and also, more importantly, it does not have a single standardized form which all or at least most Turkologists agree upon, and actually try to follow. As a result, one-time ad hoc notations occasionally appear in the literature and do little to improve (methodological) consistency and legibility, especially for linguists from outside the field.

The literature on the general subject of transcription is extensive, but it is not my aim here to summarize it. I will merely try to organize my own reflections in a more systematic way, and to draw conclusions on what type of transcription is most suitable for the purpose of family-wide comparative studies (Sections 1–3). I will then try to see how these conclusions can, or cannot, be applied to the Turkic languages (4), and summarize the whole with some examples of what I believe is the best solution (5). Unless stated otherwise, all examples throughout the text are spelt phonologically in the Finno-Ugric transcription.

I would like to express my gratitude to (in alphabetic order) Henryk Jankowski (Poznań), Tapani Salminen (Helsinki) and Jussi Ylikoski (Helsinki), and to many of my friends who have helped me with this article and offered many knowledgeable and insightful remarks and corrections. Naturally, any remaining errors, shortcomings and mistakes are mine.

1. Desirable features

For the theoretical considerations below, it is useful to begin with a summary of the most important features that make for what a linguist could intuitively endorse as a good transcription. I will also attempt to provide definitions for the terms *transcription*, *family-wide transcription* and *orthography* without, however, unrolling the terminological dependency chains in full so as to not lose the train of thought.

Transcription will be understood here as 'a set of rules which allow the representation of (selected aspects of) spoken text with the use of a writing system'. The specific choice of features that make a transcription ideal naturally depends on its purpose – see Section 2. Generally speaking, an ideal transcription is one that is:

F1 Univocal in reading and in writing

A transcription would be useless if it were not always absolutely clear as to how a certain letter or combination of letters should be read, or how to spell a certain sound.

English orthography is perhaps the most obvious example of this, and it is also the one that is the most discussed. The fact that many English speakers perceive it as being convenient can only be explained by that they already know the language and both the phonetic and the graphical shape of the words. A comparison to the Chinese writing is difficult to avoid here. Such a set of rules would be useless if employed to a word unknown to the reader, such as a reconstruction.

When it comes to the Turkic languages, the Arabic script comes readily to mind. Had it not been for external aids, such as recordings in other scripts or knowledge of modern cognates, our knowledge of the pre-20th century vocalic system of these languages would be mostly guesswork. Cf. F5 below.

F2 Exceptionless

A transcription would also be very inconvenient if it had different sets of rules for different and possibly very small groups of words. German orthography is a good example, with its relatively high number of loanwords where the original spelling has been preserved or imitated (as in loanwords from Greek). It seems that breaking this rule would not cause such grave consequences as breaking the rule of univocality described above (F1), but it would still render the system difficult to use.

F3 Methodologically homogeneous

A linguistic transcription can be expected to render the language at only one level of abstraction. If it mixed phonetics with phonology, if it sometimes recorded allophones and sometimes phonemes, it would be misleading to the reader, and especially to a reader who does not know the language – as is, for instance, always the case in reconstruction. Many official orthographies break this rule, avoiding the consequences only thanks to the fact that readers already know the language.

F4 Flexible

Living languages are constantly changing, just as our knowledge about dead languages is. A transcription which is not flexible enough to adapt to these changes is hardly useful because it requires modification rather too often, and it automatically renders old recordings illegible or misleading. It is of course not possible to prepare a transcription for any change that might possibly occur in the language, but a system which inherently lacks regularity, such as IPA (cf. A1 in Section 3.1), or numerous official orthographies, is more likely than any other to face serious difficulties in the future.

F5 Independent of the knowledge of language

It has already been mentioned that a transcription which is only clear to those who know the language, is a poor transcription. The fact that it is still usable results from the reader's intelligence, rather than from the design of the system. Scrambled text, as used in this senentce, provides a good expamle of the phenonemon. Such a random transcription would obviously be entirely useless for the usual linguistic purposes.

F6 Convenient in practice

Last but not least, a transcription is ultimately just a tool, and therefore it must be convenient to use. Typological purity and methodological elegance are naturally desirable features but they cannot compensate for nuisances. The orthography of Irish can be used to exemplify this. A very simple and elegant rule, that requires non-palatal consonants to be flanked by back vowels, and palatal consonants to be flanked by front vowels, has effectively barred all the five features mentioned above, e.g. in ‹roimh› 'before', ‹o› acts as a diacritic which keeps the *r*- non-palatal: [riv́], but in ‹roinnt› 'some, several', it is ‹i› that performs the function of a (palatalizing) diacritic: [roṅt́].

Family-wide transcription will be idealistically understood here as 'a transcription which allows the representation of every idiom of a certain language family on one level of abstraction'. A perfect family transcription is a perfect transcription as described above, which is also:

F7 Methodologically homogeneous for all idioms

It is not enough that a transcription record every dialect on one level of abstraction; it must also be one and the same level for all idioms. If a transcription were only capable of recording, for instance, the phonological level of Turkish and the phonetic level of Yakut, it would be highly misleading. Effectively, this rule means that a general transcription can only be devised for a group of languages with sound systems that are very similar and thoroughly described and understood.

F8 Uniform for all dialects

The value of a general transcription which records every idiom according to a different set of rules, is questionable. The European lexical league provides many examples here, e.g. the word *central* is spelt the same in Danish, English, French, Italian, Romanian, Spanish and perhaps other languages, but it is pronounced differently in every one of them. It is likely that this was also the case with the Old Turkic runic script. In fact, it is not at all clear to me whether such a system should still be called a single transcription.

All of this makes *transcription* different from *orthography*, which will be defined here as 'a customary set of rules which allow the symbolic representation of selected aspects of spoken text through the use of a writing system'. As it is customary rather than purposefully designed for use in linguistics, all of the rules above do not apply to it. In fact, it seems to be the violation of these rules that qualifies a system as an orthography in the eyes of many linguists. Another immediately conspicuous feature, which does not however directly result from the breaking of the above rules, is the frequent dependence of orthographies on graphical surroundings to establish the exact value of a given grapheme. Admittedly, this is much less common in younger systems than in the generally long-established and conservative orthographies of Europe.

2. Level of abstraction

2.1. Main levels

Transcriptions are usually intended to record a language at one certain level of abstraction. Even a brief examination of the possible methodological choices shows that the customary binary differentiation, phonetic versus phonological, is only true if used as an umbrella term for a variety of degrees of abstraction, and an oversimplification otherwise. The transition is quite gradual, and I will consider below the most distinct steps. The commentaries are not intended to be exhaustive discussions, as this would go beyond the parameters of this work, but rather to give a general idea of the transcription's possible strong and weak points. For each step, I will (purely subjectively) decide how well it satisfies the desired qualities listed above (Section 1) with a very simple four-level scale ranging from "very good", through "good" and "lacking" / "in danger" to "unacceptable". Features F1–F6 are evaluated for a transcription meant for one idiom only, while features F7–F8 are evaluated for a transcription meant to encompass a group of idioms. Later, the same will be done for specific alphabets used for transcription (Section 3.1).

The most phonetically accurate recording of a spoken text is a sound wave graph. However, this is obviously far too radical to be useful and also, according to the

definition in Section 1 above, it is not actually a transcription (as it is not a writing system).

Nevertheless, it is easy to imagine that there exists a "proper" writing system which matches sound wave graphs in accuracy – but consequently, at the level of inconvenience as well. It must be accepted, therefore, that any usable phonetic transcription is not in fact extremely accurate phonetically or, in other words, that it is methodologically "polluted" to a certain degree, and namely to the degree where it becomes usable.

L1 One-time features (sore throat, fatigue, sloppy pronunciation, intonation, &c.)

In normal conditions, most of these features could perhaps be important for a forensic linguist but not for a comparative one, and as such, they are traditionally not recorded. However, sarcasm and other emotions are often expressed by intonation alone. Therefore, omitting a one-time intonation from a transcription could possibly render the meaning of the utterance the exact opposite of what was really intended. Cf. also full assimilations (L4) and Section 2.2 below.

> Univocality: very good | exceptionlessness: very good | homogeneity: very good | flexibility: very good | independence: very good | convenience: unacceptable | family-wide homogeneity: very good | uniformity: very good.

Clearly, a transcription which marks all one-time features is almost perfect, but it is rather inconvenient in use.

L2 Individual features (timbre, pitch where not phonological, &c.)

These features are even more unimportant for linguists than the one-time features described above (L1) because none of them could be used to express emotions or to alter the meaning in any other way.

A transcription at this level scores the same as a transcription which records one-time features.

L3 Partial coarticulations

Acoustic phonetics has shown beyond doubt that speech is essentially a continuum of overlapping sounds rather than a sequence of clearly delimited units. Therefore, the question arises as to whether a transcription should record those coarticulations which usually only last for a part of the duration of the sound, can be predicted almost without fail by the closest phonetic surroundings alone, and which are generally unrecognized by native speakers.

The methodological choice of including them in the transcription had already been tested over a century ago by Setälä (1901) and his followers, and was eventu-

ally and not entirely without reason, dubbed *furor phoneticus* by Hungarian scholars.[1] The value of detailed phonetic descriptions cannot be overestimated, but the exaggerated pressure on painstaking minute phonetic detail in every work can lead to something approaching absurdity. As hearsay has it, some linguists would add diacritics at home to their field research material only to avoid the accusations of a lack of scholarly scrutiny. Indeed, it would be difficult to imagine anyone write ‹л̮ᾱ̊i̯ə̑γt̹ʿā^γз› or ‹t́š́ǫ̆ă̯r̹v̀^e-γặr̹̄p̹̄^E› at the pace of speaking (Eastern Khanty for ‘hängen (intrans.)’ after Toivonen (1956: 102) and Skolt Saami (Suonikylä) for ‘[a type of] Geweihhof […]’ after Itkonen (1958: 13), respectively).

In Turkological comparative studies, this level of detail is virtually impossible. Phonetically meticulous descriptions of many languages are uncertain and hardly available or, too often, have yet to be written. *Furor phoneticus* might have failed to create a cozy atmosphere, but it nonetheless produced a solid and trustworthy base for further research, and this is still missing to considerable degree from Turkology.

The availability of a sound base of material transcribed at L3, is invaluable. However, using this level for comparative studies in general would be rather inconvenient. For many Turkic languages, it is virtually impossible, and the same goes for any attempts at reconstruction.

> Univocality: very good | exceptionlessness: very good | homogeneity: very good | flexibility: very good | independence: very good | convenience: lacking | family-wide homogeneity: very good | uniformity: very good.

L4 Full assimilations

Full assimilations are here those that last for the full duration of the sound and that also might happen to non-adjacent sounds. Unlike partial coarticulations above (L3), they are generally recognized by native speakers. In some cases, they might be a one-time feature, e.g. Turkish *sonbahar* ‘autumn’ will be pronounced with [-nb-] in careful, and with [-mb-] in sloppy speech. In some other cases, however, they might be fully regular. This is true in Yakut where an entire system of such assimilations is

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1 Apparently, the first to use the term to refer to the Finnish school, was Gy. Laziczius (1936: 219):

> Valóságos „furor phoneticus” szállta meg a lelkeket finn részről: a tudományos pontosság jelszavával minden hangárnyalatot írásba foglalni törekedtek.

It was later repeated by others, sometimes in an even firmer tone, e.g. Décsy (1969: 38) talks about *phonetischer Extremismus*, and Hajdú (1977: 75) offers the following remark:

> Le grand linguiste hongrois [= Gy. Laziczius] établit même, à ce propos, le diagnostic du «furor phoneticus», et il considère que l’origine de cette maladie se trouve dans une déformation de la notation phonétique du FUF (Finnisch-Ugrische Forschungen).

However, Laziczius did not invent the term himself. It has been reported that K. Szily used it at least as early as 1898 (when Laziczius was two years old), but not in reference to the Finnish school (*Országos Hirlap* 128 (1898.05.09): 1; *Vasárnapi Ujság* 45/20 (1898.05.15): 338).

in fact obligatory on morpheme boundaries, e.g. Yakut *et* 'meat' + *-byt* PX1PL > *eppit* 'our meat'. Sometimes, they might yield an allophone which is different enough from its base form to be considered a separate phoneme by many native speakers, e.g. *ń* before a fricative is pronounced [ʃ̃] in Polish, as in *końsk*i [kɔʃ̃ś́ki] 'equine' ← *koń* [kɔń] 'horse' or *Gdańsk*. Finally, particularly frequent words might undergo an entire series of such assimilations and, over time, gain the status of separate words in their own right. This is probably more common in English than in other languages. *I am* ≥ *I'm* or *do not* ≥ *don't* and similar examples appear to be closer to crossing this border at the moment than e.g. *want to* ≥ *wanna* or *I am going to* ≥ *I'mma*. It is debatable whether this should be considered an overlapping with L1. Cf. also Section 2.2 below.

Univocality: very good | exceptionlessness: very good | homogeneity: good | flexibility: very good | independence: good | convenience: good | family-wide homogeneity: in danger | uniformity: very good.

L5 Phonemes

At first glance, a phonemic transcription might appear to be a perfect and universal solution. However, serious obstacles swiftly arise when the details must be sorted out. Since a "phoneme" appears to be not as much a psychological reality per se as rather an, admittedly, very persuasive illusion created by life-long use of an alphabetic script – see Port (2006, 2007) and others for an adroit summary of the evidence – it is only natural that it is defined in many different ways. As a result, assessment of the exact phonemic inventory is hampered by issues of various kinds, such as the phonemic status of harmonized vowels. Cf. Sections 4.1 and 4.2.

It would seem that this potentially endless source of contention can be overcome by raising the level of abstraction even further, up to where concepts can be less blurred by factual limitations. Or, almost inversely, by assuming the simplistic rule that in case of doubt, a phoneme is simply what can be heard, i.e. possibly an allophone, if it happens to be pronounced or heard in the same way as another phoneme. The latter seems to be more practical, but makes the transcription semi- rather than purely phonological.

In practice this level can be taken together with L6b (cf.).

Univocality: good | exceptionlessness: in danger | homogeneity: good | flexibility: in danger | independence: good | convenience: very good | family-wide homogeneity: in danger | uniformity: in danger.

From this point on, the level of abstraction can be raised by either a) increasing the level of phonological abstraction, or by b) widening the comparative scope so as to encompass (more) cognate idioms. These two paths are independent and can be freely combined.

L6a Morphophonemes

Morphophonemic transcription could be seen as an elegant way to escape the necessity of taking sides in theoretical discussions on the phonemic status of different sounds. It has already been used in Turkology, although, to the best of my knowledge, only for suffixes. The notations of Turkic ‹-lAr› and ‹-LAr› PL are clear and convenient shorthands. Transcribing entire words, however, might prove more difficult. Using the same capital letters style, the Yakut example in L4 above can be rewritten as ‹eTBYt› which I think is less convenient to read than the previously used ‹eppit›. Also, new questions of a theoretical nature will inevitably arise. While Turkish ‹kitaB› 'book' and similar words seem fairly easy to spell, *burun*, *-rnu* 'nose, PX3SG' or *hak*, *-kky* 'right, PX3SG' and others, will spark more debate.

In general, moderation is strongly called for in the design of such a transcription in order to avoid the kind of spelling that can be seen in Abondolo (1998) (as it seems, inspired by Austerlitz (1967)) and which has been justly criticized by Winkler (2001: 425f); e.g. ‹♯AKEX-τA›, ‹LEV-IA-3N› or ‹♯AS^{H}=ATɬA-I-ɬAA› for Finnish *äestä* 'plough, PART' (p. 155) and Hungarian *legyen* 'let it be' (p. 449) and *esetei* 'cases, PX3SG' (p. 438), respectively.

> Univocality: lacking | exceptionlessness: in danger | homogeneity: lacking | flexibility: in danger | independence: lacking | convenience: good | family-wide homogeneity: in danger | uniformity: in danger.

L7a "Prosodies"

The morphophonemic transcription above (L6a) is already too abstract and analytic to be useful. However, in theory it is still possible to go one step further up and view a word as one atomic unit on which vowel harmony, and perhaps other features too, operate. Surprisingly enough, this solution had already been put forward for the Turkic languages. To the best of my knowledge, the first to do so was Lyons (1968: 129f), from whom I have borrowed the term "prosodies" in this meaning. Combining his notation – which he admits himself is "somewhat unconventional" and "for typographic simplicity" only – with the capital letters style used above (L6a), the Yakut example would be rewritten as ‹–*Ba*, –*Ro* (aTBït)›. As far as I know, this level of abstraction has not been used again except by L. Johanson and É. Á. Csató Johanson (see e.g. Johanson 1991; Csató & Johanson 1995). In their spelling, combined again with morphophonemic capitals, our word would be ‹{'aTBït}›. Obviously, this type of notation is only applicable to those words which strictly follow the rules of harmony, and can by no means be used as a general transcription.

> Univocality: lacking | exceptionlessness: unacceptable | homogeneity: unacceptable | flexibility: unacceptable | independence: unacceptable | convenience: unacceptable | family-wide homogeneity: unacceptable | uniformity: in danger.

L6b Functional phonemes

Phonetic changes can, but do not necessarily have to have any influence on the phonological system. The actual phonetic implementations in particular languages may be different, while the phonological system remains the same or almost the same for the entire family. Estonian and Hungarian ‹a› are pronounced [a/ą] and [ɑ] respectively, yet from the perspective of Uralic phonology (to the extent that such a thing can be conceived), they are both clearly /a/'s. In designing a transcription meant to be applicable to an entire family, one can be tempted to rely on the place that a particular phoneme occupies in the phonological system, rather than on its actual phonetic shape. This would help avoid unnecessary and misleading complications.

A potential trap of this system is that the pursuit of methodological purity can lead to a vicious circle. For example, Estonian has three degrees of vowel length (but cf. e.g. Hasselblatt 1992: 176f for the prosodic analysis), and Hungarian only two. Phonetically, Hungarian long vowels rather closely resemble Estonian long vowels (the middle degree), and could be unified in transcription. This, however, would be a phonetic, rather than a phonological decision. Phonologically, the two systems are incompatible and, therefore, should be transcribed using separate sets of symbols. As a result, short /a/ would have to be spelt differently for Estonian and for Hungarian. Furthermore, ‹ɑ› would be unacceptable as the difference lies here in the quantitative and typological (segmental vs. suprasegmental) incompatibility of the systems, as opposed to mere phonetic implementation. Ultimately at least three letters or combinations would be required for Estonian, and a different pair for Hungarian, which runs against the very idea of this level of abstraction. Turkology seemed to face a precisely analogous problem in the years 1971–1988, viz. the existence of so-called diphthongoid, i.e. hyperlong vowels in Khalaj and in Proto-Turkic.

It must be said that in fact every level above L1 makes use of this "functional" simplification to some degree. This level merely extends this from unifying individuals onto languages.

A final and key point to note is that the preference for the simplest available notation for L5, which I advocate in Section 2.2 below, effectively negates the difference between the two levels as long as the transcription is limited to one language. The evaluation below disregards this possibility.

> Univocality: in danger | exceptionlessness: in danger | homogeneity: lacking | flexibility: in danger | independence: unacceptable | convenience: good | family-wide homogeneity: in danger | uniformity: unacceptable.

L7b Diaphonemes

The natural continuation of L6b above is to incorporate all dialectal variation into one transcription, insensitive to whether the phonetic change did or did not cause a shift in the phonological system of the given idiom. I will use the term "diaphonemic" in

this meaning, regardless of all the variations of the definition which can be found in the literature.

Such a transcription allows, for instance, the spelling of English *body* or *caught* without having to decide on the exact quantity of the vowel (*-o-* in *body* is short in Received Pronunciation and long in General American, while the inverse is true for *-au-* in *caught*). A Turkic example is the spelling ‹|ōt|› 'fire' for *uot* in Yakut, *ōt* in Turkmen, *ōd* in Uzbek dialects, *od-* (in *odun* 'firewood') in Turkish, *ut* in Tatar, &c. In fact, within Turkic a diaphonemic transcription would be roughly equal to a reconstruction, i.e. the kind of a pan-dialectal approximation that *Turkic* (*Gemeintürkisch*) very often stands for in Turkological literature. In this sense, it is also similar to Chomsky and Halle's (1968: 233f) spelling ‹rixt› for *right* which is as famous as it is impractical for a phonological transcription.

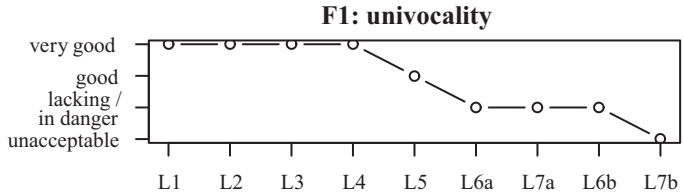
The crux of a diaphonemic transcription is the exact negation of the rule of uniformity (F8). Nonetheless, such a system can be useful in some situations. I believe that the supposed pan-dialectal character of the Old Turkic runic script was not without political importance. In theory, such spelling could still be used today with the same purpose in mind, although practical difficulties arising in its everyday usage would most likely overpower its benefits and caricature its hidden political message. The opposite solution, employed by the Soviet government for the Turkic nations within the USSR, appears to have been more successful.

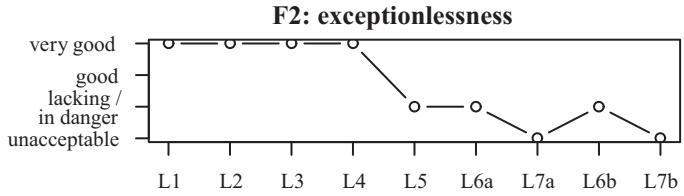
> Univocality: unacceptable | exceptionlessness: unacceptable | homogeneity: in danger | flexibility: in danger | independence: unacceptable | convenience: lacking | family-wide homogeneity: in danger | uniformity: unacceptable.

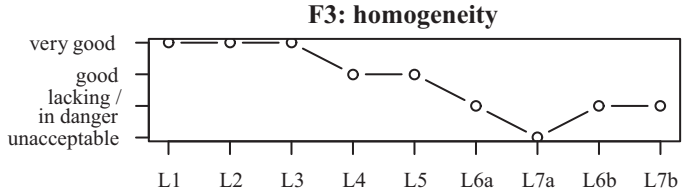
A side question is whether inarticulate sounds (grunts &c.) and other paralinguistic features should be included in the transcription. The traditional practice of omitting them is justified from the point of view of phonology and morphology, as such utterances clearly stand outside of the parameters of these levels and notoriously evade all their rules. For phonetics, however, they should be of some interest, and for semantics they are not at all meaningless. The information they convey may be very often simple but is nevertheless crucial for the entire utterance, or sometimes may even be the entire utterance.

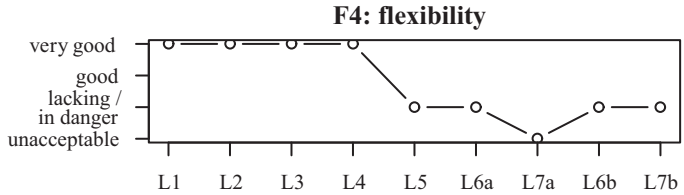
In my view, the decision on the inclusion of inarticulate sounds should be left to the authors' common sense. In the great majority of cases, omitting them would by no means decrease the comparative linguistic value of the material. In the rare cases where it would, they can be recorded descriptively fairly easily by simple ad hoc notations (*grunt of acceptance* &c.) or by a more advanced system, e.g. the *Jefferson system* (Jefferson 2004; Ward 2000 &c.). It must be remembered, however, that a transcription which does not provide any way to render those sounds is in fact phonetically incomplete.

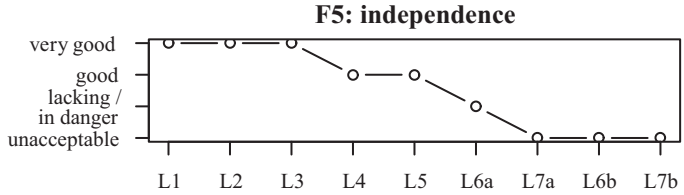
All the above considerations can be summarized, in a hopefully more concise way, by the (subjective) scores each level of abstraction has received:

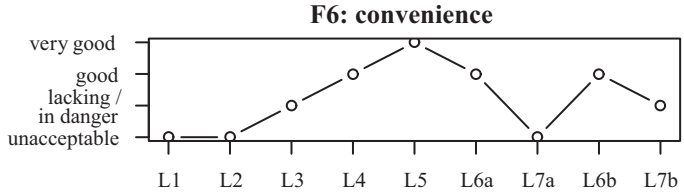


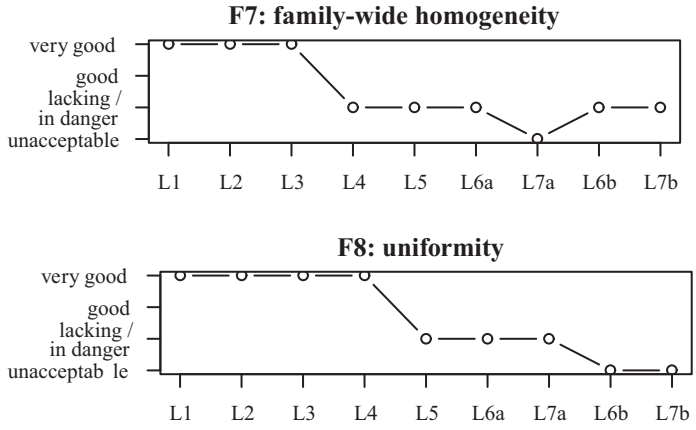












The immediate, and absolutely obvious, conclusions are that 1) a perfect and universal transcription does not exist, and 2) the more extreme the methodology behind a transcription is, the less convenient it is when used. A slightly less obvious observation is that phonetic transcriptions generally score much better than the phonological ones, but at the expense of convenience.

Taking all the features into account, it seems that the most promising solutions are those in the middle of the field, L4 and L5, the phonetic and the phonological – or, more precisely, the semi-phonetic and the the semi-phonological. The latter is more convenient and thus preferable in most applications for comparative studies. L6b appears to be the most tenable in comparison to all the others.

2.2. Interpretation

It must be emphasized that both L4 and L5 are defined not only by the (very) short descriptions provided in Section 2.1 but also by not being any other level of abstraction. I am aware that it will be necessary to slightly modify the exact spelling every time in order to adjust it to the purpose that the actual instance of transcription is meant to serve – cf. L1 and L4. Examples:

An L4 transcription can be expected to spell Turkish *sonbahar* 'autumn' with ‹ɔ› in all contexts and with ‹mb› in a neutral context, such as an entry in a dictionary, because this is the standard neutral pronunciation. However, when it is used to record a specific speaker or a specific utterance, it is required to spell the word precisely as it was pronounced – possibly with ‹mb› in one sentence and with ‹nb› in another. By the same token, the final *-r* should be spelt ‹r› when context-free, and ‹ř› when in absolute auslaut. The same applies to, for example, the degree of palatalization of *č* or the slight aspiration of initial voiceless stops ([č́] and [kʿ] being the neutral standard).

On the other hand, an L5 transcription is not interested in the precise phonetic implementation, but rather in the place that a sound occupies in the phonological system of the given idiom. And since these tend to be relatively simple, I do not think that

it would be beneficial in any way to use more complex symbols than are necessary. A consequence is that the phonology of any language is thus viewed through the filter of the Latin script, i.e. indirectly, through the filter of Latin phonology. It is a flagrant simplification, but as the worldwide success of the alphabet has shown, it is not a fatal one. Therefore, *sonbahar* should be spelt with ‹o› and ‹r› on the one hand, but with ‹mb› on the other because in this case the phonetic assimilation becomes phonological, and in the former it does not. Likewise, there is no reason to spell the Turkish /e/ as ‹ä› or /ö/ as ‹ȫ›, /č/ as ‹c̋› or /k-/ as ‹kʿ-›. Further on, allomorphophonemes belong to another level (L6a), which enforces the spelling of Turkic ‹-lar›/‹-ler›/… PL and Turkish ‹kitap, -āby› ‘book, 3SG’ and rules out ‹-LAr› and ‹kitAP›, ‹kitĀB›, &c.

3. Notation

Ohala (1978) introduced the semiotic distinction between models and symbols into discussion of linguistic transcription. Feature notation is considered to be a model. The opposite of this, I understand, would be letters which are obviously symbols. The question arises as to which better serves the needs of a notation meant for comparative studies.

Recording words does not necessarily require the same system that is used to write laws. Feature notation has its confirmed advocates, but not even they go so far as to use it instead of the Latin alphabet to write their books. It seems then that a purely model transcription is not very useful for writing texts, which is our primary goal here. Just how advantageous it is in recording laws is another matter.

Diacritics are usually used to denote a single phonetic feature. In fact, a rich enough set of diacritics could be used instead of words in feature notation:

$$\begin{bmatrix} -\,\text{cons} \\ +\,\text{low} \\ +\,\text{nasal} \end{bmatrix} = \begin{bmatrix} \circ \\ \vee \\ \text{˛} \end{bmatrix}$$

Diacritics can therefore be seen as models used on top of symbols. Effectively, this reduces the difference between models and symbols to whether they express one or many features at the same time:

$$\text{ą} = \begin{matrix} \text{a} \\ \text{˛} \end{matrix} \left\{ \begin{bmatrix} -\,\text{cons} \\ +\,\text{low} \\ +\,\text{nasal} \end{bmatrix} \right.$$

Any alphabet-based transcription which makes use of diacritics is therefore semiotically inconsistent. However, by abstracting some features away, such a transcription requires far less separate symbols and generally gives the impression of being more regular, but also the final compound signs appearing in actual usage are more complex.

This set of features strongly resembles the most visible differences between fusional and agglutinative languages. Feature notation, on the other hand, approximates isolating languages. "Polysynthetic" transcriptions would be syllabic or ideographic writing systems, but these are not used in linguistics for obvious reasons.

"Agglutinative" and "fusional" transcriptions are equally univocal and independent of a knowledge of the language, and both can be equally exceptionless. The former are methodologically (semiotically) inconsistent but more flexible. The latter is conclusive in my eyes. The question of convenience appears to be an acquired taste in this instance.

3.1. Alphabet

In any language, the number of allophones is always greater or equal to the number of phonemes. The set of signs used by an L4 transcription must be sufficient for an L5 one as well. It would be an unnecessary complication to use separate sets of signs for the two, as the distinction is traditionally already made by enclosing the notation in square brackets (L4) or slashes (L5).

There are a great number of transcriptions currently in use in linguistics, but only a relative few are rich and/or flexible enough to satisfy the needs of an L4 transcription for the Turkic family. I am convinced that proposing an entirely new system, should it actually gain any acceptance and following, would only create more confusion than already exists in comparative studies in this regard. Adapting a transcription which is comparably popular as of now and seems flexible enough to maintain this status in the foreseeable future, would help facilitate inter-familial research, especially if little modification is needed for it.

I have chosen those systems that seem particularly prospective or relevant by already being popular (in particular, in Turkology), rich, flexible, standard for languages which have had much contact with Turkic, &c. (This is also why I ignore the Turkic Uniform Alphabet here – see e.g. *Stenografičeskij otčet* – despite its apparent pertinence, or the Arabic script apparently favoured by Johanson (2009). Both are targeted at laymen and are unsatisfactory for linguistic needs.)

All the systems thus selected belong to one of three distinctly different traditions (alphabetically): 1) Anglo-Saxon (A1), 2) (continental) European (E1–E6) or 3) Turkish (T1). The main difference between the first two lies in the attitude towards diacritics. Anglo-Saxon systems are based on a strong aversion to them because of their claimed negative effect on legibility. This argument might be valid when transcription is used to record an entire text, which is meant to read like a novel. This is rarely the case in comparative linguistics. (Continental) European systems, on the other hand, tend to make heavy use of diacritics in order to improve their flexibility and regularity, and to minimize the base set of signs which must be memorized. Which of the two is more elegant is perhaps open to debate. The latter is far more practical. Finally, the Turkish tradition aims to use as few symbols as possible outside of modern standard Turkish orthography. This is hardly practical at all.

The Anglo-Saxon tradition can be said to have grown out of nineteenth-century attempts at English spelling reform. Perhaps the most notable of the numerous propositions was the *Romic alphabet* advanced in Sweet (1877), which is also the direct basis for IPA (A1 below), the ultimate stage in the development of this tradition. This is how its author characterized the atmosphere of the time (p. 169):

> The absolute necessity of phonetic reform is now almost universally recognized, not only by practical teachers but also by scientific philologists. All the objections that prejudice and irrational conservatism have been able to devise have been successfully met […].

The attachment to tradition in spelling is in fact so strong that it can even affect *phonetic* transcription: the letter ‹ʌ› is still used in such words as *cuff* or *up* in RP English even though the factual pronunciation has shifted forward after the Second World War (Roca & Johnson 1999: 135).

A1 International Phonetic Alphabet

IPA is by far the best-known and also one of the oldest phonetic transcriptions. However, it would be very difficult to explain its popularity and vitality in terms of its actual merits. IPA is "fusional", unlike most other transcriptions which are "agglutinative". This does not necessarily have to lead to inconsistency or arbitrariness, or completely bind its practitioners to the judgments of the standard-setting body. In this case, however, it does.

For example, palatalization is expressed by a separate letter (‹c› for [ḱ]), an extended tail (‹ɲ› for [ń]), an inverted unrelated letter (‹ʎ› for [Í]), a cedilla on an unrelated letter (‹ç› for [χ́]), or a curl on a related (‹ʑ› for [ź]) or on an unrelated letter (‹ɕ› for [ś] and ‹j› for [ɣ́]). Separate letters are particularly common for vowels, e.g. ‹ɯ ʊ ɤ ɵ ʌ› and others.

A more sarcastic mind might think that, in this particular implementation, the focus has shifted from not using diacritics at all to using them so randomly as to create the impression that they are actually something else.

On a positive note, IPA is definitely the best documented and exemplified system, and also one of the richest, if not the richest. It is also fully supported by Unicode which, however, is also essentially true for all the other proposals, and a somewhat weak argument in general (see below).

It might also be added as a curiosity that in the 1920s and 1930s, Yakut was written with an orthography composed by S. A. Novgorodov of IPA characters (see Korkina et al. 1977, in particular pp. 8 and 87–90). But, of course, this cannot be used as an argument in favour of IPA in our case, for the requirements of an orthography are incomparably lower and fewer than those of a linguistic transcription.

> Exceptionlessness: unacceptable | homogeneity: unacceptable | flexibility: unacceptable | convenience: good.

The first fully usable (rich and flexible) transcription in the European tradition appears to be the *Standard Alphabet* proposed by Lepsius (1863; first version in 1851). However, it seems to have never gained wide acceptance and its usage would be misleading today, even if for mere technicalities, e.g. a subscribed umlaut (‹u̱›) for [ü] &c.) is already used in Turkology to write front vowels which were originally spelt as back, e.g. because of diacritics being omitted in the Uighur script. Other propositions followed and, with a certain degree of conventionality, the bases of all philology-specific transcriptions can be said to have been wholly formed by the end of the First World War. Later enhancements and amendments rarely made any substantial changes to the core of those systems.

In Turkology, the earliest elaborate system is probably the one used in Radloff (1893–1911). However, the fact that this monumental work has been in constant use for a century and no one seems to have followed the transcription used in it, might indicate that it is not the design preferred by Turkologists. Meanwhile, a Latin-based system has gained popularity and is sometimes used even by "Cyrillic" scholars.

EI Turkological practice

As far as I can tell, the standard practice of transcription in Turkology has never been exhaustively described. However, despite obvious differences between authors and their particular works, the most commonly used base is nowadays generally quite stable. Apart from the notoriously unclear ‹γ› and the wide choice of notations for [e] : [ä], only one point requires a little more attention here:

‹y› is usually used in one of two meanings: [i̱] or [i]. Each choice leaves the other sound without a natural designation. The deficit is most commonly filled by ‹j› and ‹ï›, respectively, and both solutions have their downsides:

The spelling ‹j› for [i̱] and ‹y› for [i] is perhaps misleading from the perspective of Turkish orthography. On the other hand, it enforces the use of different signs for [ž] and [ʒ] which can be good for consistency: cf. ‹c–č–ʒ–ǯ–s–š–z–ž› vs. ‹c/t͡s–č–ʒ/d͡z–j/ǯ–s–š–z–j/ž›. It is also practical for transcribing Slavonic (Russian) loanwords where this convention is dominant.

A double dot above a letter is consistently used in standard orthographies to denote 1) fronting of a vowel (umlaut; ‹ä ö ü›) or, less commonly, 2) separation of two adjoining vowels or an exception in orthography (diaeresis; e.g. Spanish ‹guitarra› vs. ‹pingüino›). It comes as more than a surprise to use it to mark backing of a vowel, as in ‹ï› for [i]. IAP (p. 22) calls it an inverse conformity with the tradition, and I think this is a very diplomatic wording. Moreover, in this way ‹j› and ‹y› are left unused which invites inconsistency, as seen above.

In any manner, the actual weak point of the common Turkological practice is its lack of a rich and regular (= flexible) standardized form. However, it is actually rich enough to make large extensions very rarely required. Consequently, the literature is spotted with ad hoc one-time notations. (The classical example is the notation of broad versus narrow *e*: the former is mostly transcribed as ‹e ɛ ä› or ‹ə›

in Cyrillic texts, whereas the latter is more often than not rendered as ‹e é ę ė ẹ›, the final combination being usually a matter of current personal preference.)

Exceptionlessness: good | homogeneity: good | flexibility: unacceptable | convenience: very good.

E2 N. A. Baskakov's propositions

N. A. Baskakov proposed two different phonetic transcriptions for the Turkic languages: Baskakov 1959 and 1968 (the latter was repeated with nearly no modification at all in Baskakov 1976). The former is not overly exhaustive and makes little use of diacritics; the latter is considerably richer and more flexible, and well-suited for recording the Turkic languages.

It is essentially an extension of the common Turkological practice. Some sounds and features, however, have received new notations, e.g. [ϑ] is spelt ‹ŝ› and half-voicedness is marked by ‹◡›. Some details are difficult to establish as the presentation of the system is inconsistent and one or two symbols are apparently assigned mutually exclusive values on different pages. The entire system, however, is generally quite regular with only one or two exceptions.

Paradoxically in a sense, its well-suitedness to the Turkic languages is also its weakness. It does not provide a way of notating non-Turkic sounds and as such, it can hardly be used to record foreign words, e.g. the etyma of loanwords. This deficit could be fairly easily compensated for. However, other systems provide a higher degree of flexibility with less need for modification.

Exceptionlessness: very good | homogeneity: very good | flexibility: lacking | convenience: lacking.

E3 Slavistic transcription

The transcription used by Slavists has been evolving since the (very early) beginnings of research in this field. When work on the *Slavic Linguistic Atlas* began in 1958, the International Committee of Slavists recognized the need for standardization. The codified base has been republished in every volume of the *Atlas* (appearing in different places since 1988). Although quite rich, it still does not comprise all the conventions which one can encounter in the literature. Czesak et al. (2004) summarizes the Polish tradition and can be treated as an almost exhaustive extension of the standard. There are, however, minor differences between the two sources (such as ‹:› in the former vs. ‹ˉ› in the latter for vowel length).

A characteristic feature of this transcription is its intuitiveness and no-nonsense attitude. This can be seen clearly in the notation of non-cardinal vowels which are simply composed of standard Roman characters, e.g. ‹å› for [ä] or ‹o̹› for [o̜].

Despite its richness and flexibility, the Slavistic transcription still seems to lag behind IPA and FUT (A1 and E5), but its few weaknesses could be very easily redressed. Moreover, most Turkologists are already familiar with its main points because of the large number of Russian loanwords in the Turkic languages, which are usually transcribed with this system.

Exceptionlessness: very good | homogeneity: very good | flexibility: very good | convenience: good.

E4 Semitic studies

A single, universal and widely followed transcription system for the Semitic languages does not seem to exist. Many languages have their own specific traditions which are generally mutually compatible, but cannot be said to combine into one standard as a whole.

Reichmuth (2009) provides a very helpful description and comparison of the systems that have been created to transcribe classical Arabic. However, out of the six that he deals with in detail, four must be directly discarded because of digraphs. Those that remain are the *Deutsche Morgenländische Gesellschaft* transcription composed by Brockelmann et al. (1935) and its subset, the transcription used in EALL. The latter is limited in scope to classical Arabic and is in fact a transliteration rather than a transcription. In dialectology, either IPA (A1 above) or personal, unstandardized extensions are used.

The DMG system is of most interest to us here. Its Arabic part is definitely not rich and flexible enough to easily and non-arbitrarily be imported into Turkology. Diacritics are relatively few and are not used in an entirely regular manner, e.g. ‹ˇ› is used for postalveolarization in ‹š› and, by analogy, in ‹č›, ‹ž›, &c. in dialectology, but at the same time for an unrelated sound in ‹ǧ› ([ʒ] or, more adequately, ‹ج›) where its function would be difficult to capture. However, from the perspective of Arabic linguistics, it is quite easy to imagine the logic which might have stood behind this choice. The use of ‹ ̣› for emphatic consonants and simultaneously, the letter ‹ح› (‹ḥ›), seems to result from a similar reasoning.

For us here, however, the most relevant part of Brockelmann et al. (1935) is the system that they propose for transcribing Turkic languages in the Arabic script and Arabic words in Persian and Turkic context. It contains a number of interesting solutions, such as ‹ ̲› for vowels spelt long but pronounced short (as in قانیژه → ‹Qa̲ni̲ža›) or the distinction between ‹ث› in the Arabic (‹t̲›) and in the Persian or Turkish context (‹s̲›), but it nevertheless seems to have never gained a significant following in Turkology. Overall, it is first and foremost a transliteration system and, as such, rather too limited to encompass the real pronunciation of all Turkic languages.

Exceptionlessness: good | homogeneity: good | flexibility: lacking | convenience: very good.

E5 Finno-Ugric Transcription ("Uralic Phonetic Alphabet")

The usage of FUT is in general quite uniform – unless typographical problems arise – and the system can almost be considered a single notation, somewhat unlike e.g. APN (E6 below). It is not, however, as rigidly adhered to as IPA or the Slavistic transcription (A1 and E3 above); e.g. Abondolo (ed., 1998) and Aikio (2007) use ‹ï› for [į/į] and ‹ë› for [ę]; the former, together with some other innovations, has been classified by Winkler (2001: 425) as a *Berlitz-Sprachführer-Transkription*.

The standard for Finno-Ugric transcription was first proposed by Setälä (1901). A number of (mostly superficial) modifications and enhancements were postulated during the century following the first publication, perhaps most notably by Lagercrantz (1939) and Sovijärvi & Peltola (1977). The latter can still be considered the model version, cf. e.g. the table in Ojutkangas et al. (2009). Sammallahti (1998) presents a very useful extract in English, although it differs in some minor details. In Table 1 below, I present a compromise between these versions, which is compiled in such a way as to make it as close as possible to the Turkological practice. Note that FUT has already been used in some of the most important publications in Turkology (cf. e.g. Räsänen 1949; Ramstedt 1952, 1957; VEWT).

FUT is a purely "agglutinative" system. It uses diacritics (very) extensively and in a very regular way which makes it unusually rich and flexible but also troublesome to typeset. It is generally supported by Unicode, albeit mostly as base letters and combining diacritical marks rather than full combinations. See below for a little more commentary on technical matters.

> Exceptionlessness: very good | homogeneity: very good | flexibility: very good | convenience: good.

E6 Americanist Phonetic Notation

The inclusion of APN here, which may be slightly surprising, has been dictated by the fact that it is (arguably) more popular than most other propositions, particularly due to the extensive use of Native American examples in American theoretical works.

The beginnings of APN can be traced back to HAIL and Boas et al. (1916). Since these publications, it has been modified and enhanced many times and, partly, in different ways. Confronted with actual usage, it can in fact be considered more of an umbrella term for diverse personal alterations. Pullum and Ladusaw (1996) provide a summary of the base skeleton and aptly call it *American usage* rather than *APN*.

Despite its American descent, APN is a European transcription in spirit, albeit the most Anglo-Saxon one. Where this manifests itself most clearly is in the notation of vowels where only two diacritics are used: crossing (horizontal stroke) for centralization and umlaut for fronting and backing simultaneously: ‹i ɨ ï, ü ʉ u›. It has to be admitted that a diacritic which toggles vowels front-back, is a cunning and potentially very useful trick, especially for a phonology like Turkic, which is quintessentially based on such a binary opposition.

As far as usefulness for our purposes is concerned, APN is altogether most similar to the current Turkological practice (E1): it has indubitable merits but it is even more diversified and badly needs a proper standard.

Exceptionlessness: good | homogeneity: lacking | flexibility: lacking | convenience: very good.

T1 Modern Turkish orthography

It is common practice, especially among Turkish Turkologists, to use standard modern Turkish orthography to record all Turkic languages. This system has a large number of obvious drawbacks, a very strong political undertone, and is far too deficient for its use to be justifiable in any way from the linguistic point of view.

Exceptionlessness: unacceptable | homogeneity: lacking | flexibility: unacceptable | convenience: very good.

The short summary here has no single incontestable winner. IPA and the Turkish tradition (A1 and T1) can both be readily discounted. Turkological practice (E1) is not standardized and therefore inconsistent, and the same applies even more to APN (E6). N. A. Baskakov's propositions (E2) have hardly gained a following, are less flexible than others and too narrowly tailored. The Arabist tradition (E4) has only been standardized to an unacceptably narrow scope.

This leaves us with the Slavistic transcription and FUT (E3 and E5). Both are rich, flexible and rather popular in their respective fields. Both the Slavic and the Uralic languages have had intensive contacts with Turkic. Both are standardized, but neither standard is followed as strictly as IPA. Both have their moments when it comes to typesetting.

It would be difficult to quantify precisely their richness or their degree of flexibility. According to my intuition, however, FUT appears to lead in these fields over the Slavistic transcription. This is not a very strong argument, for both are in fact rich enough to record any Turkic language at L5, but it does seem to make FUT more promising. See Table 1 for details.

Because of its heavy dependence on diacritics, FUT is quite troublesome to typeset. Nonetheless, technology – particularly computer technology – has been repeatedly shown to be unpredictable and, generally, to advance faster than expected. A little more than twenty years ago, Janhunen (1987) promoted the use of a phonological rather than phonetic transcription for Siberian languages, and the notation he designed to this end was so ingeniously thought out as to nearly forgo any diacritics and new or non-Latin letters at all. The main reason for this was to make it computer-friendly and easy to use for average linguists who might lack the knowledge and inclinations of a computer scientist. Ironically, it was produced in the same year that Unicode began

as a project, although admittedly, it was not until four years later that the first volume of the standard was published, and it would be several years more until it began to be widely adopted. The lesson is that technical difficulties – to a certain degree, of course – cannot be treated as an argument here. We cannot tell how many of them will remain valid ten or twenty years from now. The fact that FUT has been maturing for over a century, through all the revolutions in typesetting and print technology, appears to make a much stronger case for it.

(a) Consonants

Place / Manner	Labial		Coronal			Dorsal		Glottal
	Bilabial	Labio-dental	Dental	Alveolar	Post-alveolar	Velar	Uvular	
Plosive	p b			t d		k g	q̈	ʔ
Affricate				c ʒ	č ǯ			
Fricative	φ β	f v	θ ð	s z	š ž	χ ɣ		h ɦ
Nasal	m			n		ŋ[a]		
Lateral/ Trill				l ɬ			r̈	

(b) Vowels

i ü — i̱ u̱ — i̱ u
| | | |
e ö — e̱ o̱ — e̱ o
| | | |
ɛ ɔ̈ — ɛ̱ ɔ̱ — ɛ̱ ɔ
| | | |
ä ɑ̈ — a̱ ɑ̱ — a ɑ

(c) Diacritics

◌̃	nasalization
◌̟, ◌̠, ◌̽ and ◌̯	slight shift back, forward, up and down
◌́	palatalization
◌ₒ, ◌ᵤ	light and heavy rounding
◌̥ and ◌̬	syllabicity and non-syllabicity
◌ʾ, ◌ʿ	pre- and postaspiration
small caps	half-voicedness
inverted or rotated[b]	reduction
◌̆, ◌̀ and ◌̄	overshortness, half-length and length
◌ˈ and ◌ˌ	primary and secondary stress
◌(◌	syllable boundary
◌.◌	morpheme boundary[c]
◌‿◌	assimilation, elision

(d) Alternates

‹i̱›	= ‹j›
‹i̱›	= ‹y›[c]
‹ḵ›	= ‹q›
‹u̱›	= ‹w›
‹ü›	= ‹ẅ›
‹ʾ ʿ›	= ‹ʰ›

Table 1. A fragment of FUT after Sovijärvi & Peltola (1977), Ojutkangas et al. (2009) and Sammallahti (1998) (see E5 in Section 3.1 above), which nearly matches in scope the second, 1968 proposition of N. A. Baskakov. I introduced two peripheral additions: 1) ‹y› as an alternate spelling for [i̱] rather than for [ü] (more useful in Turkology), and 2) full stop as a morpheme demarcation symbol.

[a] In principle, the symbol that should be used here is actually Greek eta. However, because of the unwanted association with a vowel that it raises, and in light of the great popularity of *ŋ*, I chose the latter.

[b] The default is 180° rotation (‹e› → ‹ə›) but when this is likely to cause confusion, 90° ccw rotation is used instead (‹u› → ‹ɔ› as in most typefaces ‹n› is too similar to ‹n›).

[c] Non-orthodox: my addition.

3.2. Regular expressions

The term *regular expressions* derives from computer science. In linguistics, it is essentially unused outside of computational linguistics, but the concept itself has been known for a very long time to virtually any linguist. In particular, for FUT, it appeared at least as early as Setälä (1901) under the name *kollektivzeichnen*. However, this term has not gained a wide following. In fact, the method has been generally left without a name, and it might benefit linguistic nomenclature to borrow a ready and commonly accepted term for essentially the same thing.

For our modest purposes here, a formal definition of regular expressions can be substituted with one that will hopefully be clearer to a linguist. The term will be used in the meaning of 'one or more characters which symbolize a specific set of more than one readings, or any string which includes such a character'. There is a difference between a regular expression and an equivocal spelling, which cannot be overemphasized: an equivocal spelling can be read in one of many possible ways while a regular expression is simultaneously read in all possible ways. For example, in common linguistic practice, ‹C› is usually used to denote 'any consonant', hence ‹aCa› stands for *aba*, *aca*, *ada*, &c. all at the same time.

‹C› and ‹V› are essentially the two most widely understood symbols. In newer versions of FUT, six (eight) symbols were proposed, which can be combined into eight basic units:

‹x›	'any consonant'
‹xx›	'any geminate consonant'
‹xy›	'any group of two different consonants'
‹qxy›	'any group of three different consonants'
‹ɜ› or ‹ʌ›	'any vowel'
‹ʊ›	'any back vowel'
‹ʊ̈›	'any front vowel'
‹ɜɜ› or ‹ʌʌ›	'any diphthong'

This is a much more powerful system, but hardly powerful enough to express any possible combination at all. However, it can easily be enhanced with the use of diacritics, which are absolutely regular in FUT. For example:

‹x́›	'any palatal consonant'
‹x̣›	'any retroflex consonant'
‹ʒ̲› or ‹ʌ̲›	'any central vowel'
‹ɛ̂› or ‹≺»	'any reduced central vowel'

One way to further expand this system is to use feature notation. However, this is very inconvenient in practice and should not be overused, which all too often is the case (cf. Section 3 above).

A partially alternative solution is to enhance the ‹C›, ‹V› model, which can be done easily as capital letters have no meaning in FUT. The main advantages are: 1) the symbols stand out because of their size; 2) notation is – arguably – more intuitive; 3) the letters ‹q›, ‹x› and ‹y› are freed. See also Section 3.2.4. For example:

‹A›	‘any back vowel’
‹Ä›	‘any palatalized vowel’
‹E›	‘any front vowel’
‹O›	‘any labial vowel’
‹W›	‘any long vowel or diphthong’
‹V$\underset{\frown}{\text{V}}$› or ‹$\underset{\frown}{\text{V}}$V›	‘any diphthong’
‹CC›	‘any two consonants (cluster or geminate)’
‹C̄›	‘any geminate’
‹N›	‘any nasal consonant’
‹P›	‘any back(ed) stop’
‹S̊›	‘any postalveolar sibilant’

The main downsides of this system is that without proper standardization, it can be very ambiguous. Unexplained, ‹O› can be understood as both ‘any labial vowel’ and ‘any low labial vowel’, which is an important difference for languages where labial attraction is present. I am sure that a regular and flexible system would eventually gain common acceptance, if it could be argued for as elegantly as the mathematical equals sign is:

> And to auoide the tediouse repetition of these woordes : is equalle to : I will sette as I doe often in woorke vse,a paire of paralleles,or Gemowe lines of one lengthe,thus:=,bicause noe.2.thynges,can be moare equalle. (Recorde 1557)

Still, there are ideas which are well known in “computer regular expressions” that cannot be recorded in any of the above ways. The most important ones are probably alternation (Section 3.2.1), exclusion (3.2.2), optionality (3.2.3) and repetition (3.2.4).

3.2.1. Alternation

It is often necessary to provide a few alternatives, not necessarily related to one another, rather than an entire set of homorganic sounds. Different solutions have been proposed to avoid repeating the entire word many times, as it might be regarded as clumsy. Until the early 20th century, listing all the alternatives on top of one another seems to have been the favoured method. However, as technology advanced, this solution became more and more difficult to typeset. In recent publications, a vertical bar is quite popular. an example: ‹pyjamas› ~ ‹pajamas› = ‹p$\overset{y}{\underset{a}{}}$jamas› = ‹py|ajamas›.

The "stacking" method is elegant and immediately understandable, but using it for more than two, or three at most, options will result in a quite aesthetically unappealing increase of space between the lines. The vertical bar, on the other hand, can be unclear even with three possibilities and entirely incomprehensible when any of the options is longer than one letter, for example ‹a$^{b}_{c}$a›, ‹a$^{b}_{d}$a› vs. ‹ab|ca›, ‹ab|c|da› and ‹thr$^{ough}_{u}$› versus ‹through|u›. Bracketing can greatly improve the clarity of the vertical bar solution. It must only be remembered that round brackets are traditionally used to denote optionality (Section 3.2.3), square brackets already have the meaning of phonetic spelling and slashes imply phonemic spelling. Curly and angle brackets are still relatively rarely used in linguistics, in particular in Turkology: ‹thr{ough|u}› and ‹thr⟨ough|u⟩›. The former seems to be more readable but still not as easily as the "stacking" method.

I would suggest "stacking" for up to three options, and repeating the entire word for more.

3.2.2. Exclusion

Sometimes it is necessary to record a set of homorganic sounds but with a few exceptions. For example, voiceless consonants have been voiced in Polish before all voiced consonants except **r*, **l*, **m*, **n* and **v*: **stъblo* > /źʒbwo/ ‹źdźbło› 'straw, blade' but **květъ* > /kf́at/ ‹kwiat› 'flower' (Mańczak 1983: 34).

The usual notation in programming is ‹[^…]› which would be difficult to employ in linguistics. The mathematical notation of ‹{x | x ≠ …}› or ‹… \ {…}› seems to be much more useful. With a little artistic license, the above environment can be written as ‹{x | x *is* voiced, x ∉ /*r *l *m *n *v/}› or, in a more elegant way, ‹ $\overset{C}{+\,\text{voice}}$ \ */r l m n v/›.

However, none of these methods appears to be truly advantageous over the more traditional notation. I do not think that there is any reason for linguistic regular expressions to necessarily copy all the possibilities of their computer science counterpart.

3.2.3. Optionality

Optionality is usually notated with round brackets. The only drawback of this system is that they are generally considered the default ("prototypical") brackets and therefore a little extra attention is required from the author to avoid automatically using them in some other meaning. For example (cf. Section 3.2.1), ‹thr(ough|u)› should in fact be understood as *through*, *througu* and *thr*. Substitution with angle brackets (‹thr{ough|u}›) is a simple and effective solution, and I am sure it can become a natural method with just a bit of practice.

3.2.4. Repetition

Repetition is without doubt one of the most useful features of regular expressions in programming. In linguistics, however, there is considerably less opportunity to use it. Linguists tend to operate on smaller numbers which can easily, and more understandably, be expressed by other means. For example, an initial consonant can be written ‹C-› or ‹x-›. The spelling ‹C+-› or ‹x+-› (‘one or more consonants in anlaut’) is hardly more convenient. Ideas such as *any number of* b’*s surrounded by any vowels* (‹Vb*V› or ‹ɜb*ɜ›) rarely occur in linguistic works.

A consonant cluster, i.e. a group of two or more different consonants, is more likely. The spellings of ‹xy› or ‹qxy› specify the number of consonants as two or three, and this is not desirable. Unfortunately, the usual “computer regular expressions” only provide separate symbols for 1) zero or more occurrences (‹*›), 2) one or more occurrences (‹+›) and 3) zero or one occurrence (‹?›). The symbol for ‘two or more occurrences’ is ‹{2,}› and not very convenient.

However, since linguists are not limited to unformatted ASCII, this notation can be easily improved. The most obvious solution is probably to use superscripts, as subscripts are usually already reserved for marking different sounds. For example, ‹C_1C_2› = ‹xy›, ‹C^{2+}› ‘any consonant cluster’, ‹C_1C_1› = ‹C_1^2› = ‹$\bar{C}$› = ‹xx›. Note that the spelling ‹CC› should not be possible as an alternative to the latter, as it is more useful for ‘any two consonants (a cluster or a geminate)’ (Section 3.2 above).

4. Trial

Proof is usually not viewed as rigidly in linguistics as it is in mathematics. The very nature of the object of research enforces acceptance of exceptions, and a single offending case might often not be enough to completely rebut a theory. It seems to me, however, that as far as the question is concerned of whether a single L5 transcription is capable of correctly recording all the Turkic languages, even one obstacle can demonstrate that it is not – or at least, that with all the necessary compromises, it would be a poor transcription indeed. I present below two such obstacles, out of probably many more, which are in my eyes sufficient to conclude that this idea is best abandoned.

4.1. [k] : [ḱ]

Let us consider the status of [k] and [ḱ] within the phonological system of Turkish. Turkish phonology can surely be viewed as particularly homogeneous and regular in general, but there are nevertheless a few points where its elegance is disturbed. The distribution of [k] and [ḱ] is clearly different in native words and in loanwords. In the former, they are both allophones of /K/; in the latter, they are two separate pho-

nemes. To slightly complicate the matter, the distribution of [k] is effectively limited to a back-vowel environment while [ḱ] can (in loanwords) occur freely.

One way of looking at the situation is that [k] and [ḱ] are simply two phonemes which are not contrastive in front surroundings. This attitude completely discards the distinction between native words and loans, and I think that it goes too far in this regard as even thoroughly naïve native speakers are very often and rather sharply aware of the difference.

The situation differs when it comes to the details in other Turkic languages, but the above can be said, on the whole, to characterize the entire family, with the degree of conventionality required in this kind of generalization. Therefore, it appears that we must accept two disjoint phonological systems in most Turkic languages with regard to [k] : [ḱ] ([q] : [k]). Consequently, a phonological transcription has to do one of the following:

1. Turn a blind eye to even the most manifest existence of subsystems and treat the entire phonology as monolithic. In the case of Turkish, this will mean considering [k] and [ḱ] as separate phonemes and therefore, noting the palatalization even in such words as Turkish *iḱi* ‘two’ or *ḱül* ‘ash’ and *ḱül* ‘whole’, an idea that many Turkologists would surely feel uncomfortable about. Although this is the solution put forward by Pike (1963: 143a), the methodological homogeneity of such a transcription would be at least debatable. But a less rigorous implementation is possible, too; see the “orthographical” solution below.
2. Devise separate transcriptions for every incompatible subsystem. In this way, the number of necessary systems could easily grow far beyond reason, and obviously break the rule of exceptionlessness (F2). In Turkish, it would for example result in a ridiculous situation where the same phonetic shape [ḱül] is spelt ‹kül› in the meaning of ‘ash’ (a native word) and ‹ḱül› in the meaning of ‘whole’ (a loanword from Arabic).
3. Sacrifice methodological homogeneity, and possibly other rules along with it, for the sake of convenience. In our case, the following solution could be suggested: in back surroundings, [k] is spelt ‹k› and [ḱ] is spelt ‹ḱ›; in front surroundings, [ḱ] is spelt ‹k› and [k] is spelt ‹ķ›, e.g. ‹kar› ‘snow’, ‹ḱar› ‘profit’, ‹kere› ‘times’ and ‹haķīķi› ‘real’ (*k*’s after TS and ÖTS; ‹ḥ› in the latter is even more a prescriptive fiction; final short *-i* after Ergenç 1995). This is almost how modern Turkish orthography deals with this problem: ‹kar›, ‹kar› ~ ‹kâr›, ‹kere› and ‹hakiki›, respectively (see Section 4.3 below on the usage of circumflex), and indeed, such a transcription has the appearances of an orthography rather than a linguistic transcription in the usual understanding. However, its great convenience in practical usage and its fairly good univocality cannot be denied – both at the cost of homogeneity and exceptionlessness. An interesting point to note, though, is that this solution could also pass as being equivalent to the “monolithic” above, if only *ḱ* were not considered a phoneme but in a back-vowel environment, and an allophone of /K/ otherwise.

Neither of these options is without downsides, nor is one clearly superior, and needless to say these problems would not disappear were the transcription to be widened so as finally to incorporate the entire family, all the language specific peculiarities, the shift to the [k] : [q] opposition in Bashkir and Kazakh, &c.:

1. The "monolithic" solution will no longer be able to sustain its already faint methodological homogeneity. Even a sporadic anomaly in just one dialect, like [ķ] in a front-vowel environment, will be propagated onto all the other languages and force a change in the entire system. Eventually, the transcription will become phonological in only a relatively small part, and perhaps even fully phonetic for some idioms.
2. One of the many problems of the "separate transcriptions" attitude is that it requires knowing the etymology of a word in order to spell it. If the source of either *kül* were unknown, it would not be possible to transcribe it properly. Compared to other Turkic languages, Turkish etymology is fairly advanced. In less researched languages, such as the South Siberian, the number of words which cannot be spelt when using this method, would pass beyond the limits of usability.
3. Finally, the "orthographical" solution would also fail. [k] and [ḱ] are allophones in native Turkish words regardless of whether they stand before or after a front vowel. This is, however, not the case in South-Western Karaim where *k* is only palatalized before, but never after, a front vowel. It is seemingly a phonetic trifle, but this method could trick the transcription into the awkward spelling of ‹kök› for Turkish [ḱöḱ] 'blue; heaven'.

K is, naturally, not the only problematic sound in Turkic. *G* and *l* are very similar in this regard, and probably others would emerge while attending to loose ends.

4.2. Long vowels

Now, let us briefly consider long vowels in Turkmen, Yakut and Dolgan, and Turkish. The most common reason for doing this is to draw some conclusions on Proto-Turkic vocalism, but in our case this is irrelevant as our goal is only to determine which differences in pronunciation an L5 transcription should ignore and which it should not.

Turkmen has eight long vowels. One half of them are low and middle vowels which are pronounced monophthongally. The other half are high vowels which are pronounced semi-diphthongally. (The only vowel with length marked in the orthography is /ū/, spelt ‹үй› although the actual glide is [ʷ] (Clark 1998: 31).) Phonologically, however, one is fully justified ignoring this difference and spelling all long vowels as monophthongs (cf. L5), which yields an elegant table of eight short vowels and their eight long counterparts. Turkmen is a simple specimen and nearly a model one.

Yakut has the same neat table of sixteen vowels, plus four diphthongs. Phonetically, the difference between long vowels and diphthongs is clearly audible. Phonologically, however, the two happen to overlap. (Examples from M. Stachowski & Menz 1998: 204f.)

Yakut features labial attraction: after a low round vowel in the stem, the suffix vowel is expected to become round if it is low. However, this does not apply to diphthongs, e.g. *tüös* 'breast' → *tüöhe* 'his breast', rather than **tüöhö*. Clearly, *üö* acts as (morpho)phonological *ǖ* here and spelling the word as /tǖhe/ could be justified.

When a word is used as an exclamation, its last vowel is lengthened: low and middle vowels become long monophthongs, and high vowels become diphthongs. It would seem that in this case, the phonetic realization should not be considered, e.g. *doγoruom* 'oh, my friend!' (← /doγor.um/ 'my friend') could be spelt ‹doγorūm›. However, applying the same notation to e.g. *sordōχpuon* 'oh, I am so unhappy!' (← /sordōχ.pun/ 'I am unhappy') would result in a macron denoting a length in ‹ō› and a diphthongization in ‹ū›, and that is undesirable.

Likewise, Dolgans seem to be indifferent to whether the accented vowel of a Russian loanword is rendered as a long vowel in their language, or as a diphthong. Nonetheless, ignoring this difference would make it impossible to differentiate between e.g. *korōba* ~ *koruoba* (< *koróva*) 'cow' or *ostōl* ~ *ostuol* (< *stól*) 'table'.

In Turkish, long vowels can occur 1) as a result of elision of what is spelt ‹ğ› in a back-vowel environment (e.g. *daǧ* 'mountain'), 2) as a result of some other elision (e.g. *kāve* < *kahve* 'coffee' or *Mēmet* < *Mehmet*), or 3) as preserved in loanwords (e.g. *bādem* 'almond' < Persian).

The first type is often followed by what is audible as a [ˠ] after unround or a [ʷ] after round vowels, but the sound's phonological status is unsettled and it is usually ignored in grammars. I, too, will consider it unphonological.

For our case, the third type is the most interesting: in common words, such as *kitāby* 'his book', there is very little if any variation among native speakers. In rarer words, however, or ones that are heard less often as pronounced by highly educated speakers, length often happens to be dropped, moved onto another vowel or spontaneously inserted. For example (after *Radyo Televizyon…*): *ašyk* for correct *āšyk* (i.e. 'knucklebone' for intended 'beloved'), *fāriza* for correct *farīza* 'duty' or *mākam* for correct *makam* 'office'. The spelling ‹fārīza› would be highly misleading.

As a result, a single spelling of e.g. ‹ū› in a general Turkic transcription, will have to denote 1) a long vowel in Turkmen (the diphthongoid pronunciation is not phonological), 2) a long vowel (monophthong) or, in some cases, a diphthong in Yakut and 3) a long vowel in Turkish; however, possibly pronounced with a following (non-phonological) [ˠ/ʷ] or only pronounced by some speakers in possibly mutually exclusive groups, and considered correct or incorrect. And like in Section 4.1 above, *it is needless to say that these problems would not disappear were the transcription to be widened so as finally to incorporate the entire family*.

4.3. Conclusion

The difficulties chiefly result from how abstract and blurred the concept of phoneme is, and therefore how arbitrary it can become. Average native speakers of any language are quite ignorant about and indifferent to the origin or the phonological status of palatalization in every *k* or of the length of every vowel they pronounce. Turkish orthography does not mark palatalization other than by a circumflex above the following vowel; this same symbol is simultaneously used to mark length, and usually dropped even in official writing anyway. As a consequence, rarer words are not uncommonly pronounced with lengths in the wrong places, with too few or too many. A Dolgan informant, when asked about the quantity of a specific vowel, replied that it depends: when it is pronounced long, it is long, but when it is pronounced short, it is short (M. Stachowski, personal communication).

The phoneme abstraction has been shown to create enough complications when dealing with one idiom and, understandably, more than enough when attempting to deal with many simultaneously. See Uppstad and Tønnessen (2010) for more commentary on the explanatory and descriptive power of the concept of the phoneme, and its weaknesses. Three options readily come to mind:

1. To abandon the traditional view on the phoneme in favour of a high-dimensional phonology (see e.g. Browman & Goldstein 1992), which is effectively almost equivalent to resigning from an L5 transcription in favour of a less abstract one (L4?). This will bring us closer to the truth and improve three of the eight features considered here: univocality, exceptionlessness and family-wide uniformity (F1, F2 and F8; the last one is irrelevant if the transcription does not encompass the entire family), but it will also result in less convenience (F6), which would be particularly noticeable in poorly described languages – not a rare situation in Turkology. In my opinion the gain does not outweigh the loss in this case. I would therefore prefer to persist with the bias against the psychological reality, and to adopt a more utilitarian attitude for our case.
2. To base the transcription on orthography, since it is from alphabetic spelling that the illusion of discrete phonemes arises. But official orthographies used for the Turkic languages are many and incompatible in the crucial points. The driving force of their evolution can be, and in fact too often is political situation, national pride or even a single person's whim rather than an actual change in the language. It is to be expected, therefore, that phonological awareness is equally variable throughout the family and thus useless as the basis for such a catholic transcription.
3. To discard the admittedly appealing idea of a single transcription encompassing the entire Turkic family and instead to adopt a whole set of compatible transcriptions, one for each idiom, but all based on possibly similar rules and using the same notation. This appears to be in fact the only acceptable – if not good – solution.

5. Summary

The most useful levels of abstraction (see Section 2) for (Turkic) comparative studies appear to be L5, L4 and L6b, in this order. All are defined by the brief descriptions provided and by not being identical to any other level, i.e.:

L4 Records actually pronounced allophones. Does not record coarticulations (not lasting the entire duration of the sound), individual and one-time features (timbre, sore throat, &c.).

Notations of one word can be different if the pronunciation was so (faster or sloppier speech, sandhi, &c.), or when used context-free as in a dictionary entry, e.g. Turkish *sonbahar* 'autumn': ‹mb›, ‹m̆› &c.

L5 Records actually pronounced phonemes, as determined by their most prototypical allophone. Allophones are treated as belonging to the auditively closest phoneme, e.g. final devoicing is recorded.

Aims to be a sensible compromise between convenience and faithful recording, i.e. a more formalized approximation to what is intuitively perceived as "a different sound".

Uses the simplest available notation, e.g. ‹ö› for ‹ö› if no phonological opposition exists; this makes it virtually identical to L6b.

The "orthographical" variant (differentiating [k] : [ḱ] &c. only where necessary) is more practical.

L6b Records what are phonemes from the point of view of the phonological system of the entire family. Does not record the differences in realization of one (so understood) phoneme between languages.

If limited to one language and with preference for the simplest available notation, it is virtually identical to L5. Otherwise, e.g. [ɔ] in Turkish should be spelt ‹ɔ› in L5 and ‹o› in L6b.

The Finno-Ugric transcription (see Section 3.1) is an outstandingly useful system in general, and particularly so for the Turkic languages. It is mature, rich, regular, flexible and rather similar to what is traditional in Turkology. It is troublesome to typeset but only at level L4 and below.

One modification to it should prove useful in practice, namely adding ‹y› as an alternative spelling for ‹i̯›.

A single transcription encompassing all the Turkic languages is practically impossible (see Section 4). The best solution appears to be adopting a whole set of mutually compatible transcriptions, one per idiom.

Examples

Any transcription is best evaluated on the basis of actual examples. Below are short samples for five Turkic languages in standard orthographies and in L5 FUT "orthographical" transcriptions in the simplest available notation (see Section 5 and Table 1 above).

The Karaim sample is from A. Mardkowicz's (1933: 9f) edition; see Németh (2011) for commentary and the original in the Hebrew script. All the remaining samples are from appropriate chapters in Tekin & Ölmez (2003). For Turkish, as the best known Turkic language, I have added an L4 (after Ergenç 1995) and an L6a sample.

Bashkir

Башҡорт теленең аңлатмалы һүҙлеге тәүләп донъяға сыға. Уның ғәмәлгә килеүе республикабыҙҙың культура тормошонда ҙур ваҡиға булып тора, халыҡтың дөйөм белем кимәленең күтәрелеүен, ғөмүмән, фәндең һәм культураның үҫеүен күрһәтә. Был һүҙлекте әҙерләү Совет власы йылдарында башҡорт тел […]

/baškort teleneŋ aŋlatmaly hüðlege täẅläp donjaγa syγa. unyŋ γämälgä kileẅe respublikabyððyŋ kuĺtúra tormošonda ður vaqiγa bulyp tora χalyktyŋ döjöm belem kimäleneŋ kütäreleẅen γömümän fändeŋ häm kuĺtúranyŋ üϑeẅen kürhätä. byl hüðlekte äðerläẅ saѵet vlasy jyldarynda baškort tel/

(Note: words from Russian exhibit a number of un-Turkic features which disposes them to be treated as Fremdwörter rather than loanwords (preservation of palatalized consonants, non-final stress, consonant clusters in anlaut, non-harmonic forms, &c.). Therefore, *k* which is pronounced [k] even in a back-vowel environment, is not specifically marked here as there is no [k] : [q] opposition in Russian.)

South-Western Karaim

Siwerimiz, karyndasymyz, oł syjły da abajły. Kołabiz kawnuznu ki łaskanyz bołhaj kawnuznun da barda ułanłarynyznyn ułłudan kicigedejin kełme bijencine ułanłarymyznyn oł eksizłernin. Da jamanłamanyz ki kełmedik ałnynyzha kołma ezimiz, ki biłesiz biźnin chałymyzny da haligi jołnu ki awurdu.

/siverimiz, karyndasymyz, ol syjly da abajly. kolabiz kavnuznu ki laskanyz bolγaj kavnuznun da barda ulanlarynyznyn ulludan kicigedejin kelme bijencine ulanlarymyznyn ol eksizlernin. da jamanlamynyz ki kelmedik alnyzyzγa kolma ezimiz, ki bilesiz biznin χalymyzny da γaligi jolnu ki avurdu/

Kazakh

Айла мәдет жаппар хақ, \ Сөйлесін деп біздерге \ Беріп еді тіл мен жақ. \ Бір қиссаны аяқтап, \ Тамам етіп кетейін, \ Жап болса егер аруақ. \ Неше болып таралған \ Бұл өзбектің баласы, \ Түрікмен халық ішінде \ Айырар ердің сарасы. \ Қазақпенен бұлардың \ Әуелінде бир екен \ Атасы мен бабасы.

/ajla mädet žappar hak, \ söjlesin dep bizderge \ berip edi til men žak. \ bir kyssany ajaktap, \ tamam etip ketejin, \ žap bolsa eger arwak. \ neše bolup taralγan \ bul özbektiŋ balasy, \ türkimen halyk išinde \ ajyrar erdiŋ sarasy. \ kazakpenen bulardyŋ \ äwelinde bir eken \ atasy men babasy/

Turkish

Millî his ile dil arasındaki bağ çok kuvvetlidir. Dilin millî ve zengin olması millî hissin inkişafında başlıca müessirdir. Türk dili, dillerin en zenginlerindendir; yeter ki bu dil, şuurla işlensin. Ülkesini ve yüksek istiklâlini korumasını bilen Türk milleti, dilini de yabancı diller boyunduruğundan kurtarmalıdır.

[mi̯llī hi̯s i̯lä di̯l arasyndaki̯ bā c̆ok ku̯vvätli̯di̯ĭ̯ . di̯li̯n mi̯llī vä zɛŋǵi̯n ołmasy mi̯llī hi̯ssi̯n i̯nkī̯šāfynda[2] bašłyž̆a mu̯ässi̯rdi̯ĭ̯ . türḱ di̯li̯, di̯llärı̯n än zɛŋǵi̯nlärı̯ndändi̯ĭ̯. jɛtär ḱi bu di̯l, šūrła[3] i̯šlänsi̯n. ülḱäsi̯nı̯ vä jükśäḱ i̯stī̯ḱlali̯nı̯ kɔrų̇masyny bilän türḱ mi̯llätı̯, di̯li̯nı̯ dä jabanž̆y di̯llär bɔjų̇ndų̇rų̇(u̯ndan ku̯rtarmałydyĭ̯]

/millī his ile dil arasyndaki bā čok kuvvetlidir. dilin millī ve zengin olmasy millī hissin inkišāfynda[2] bašlyža müessirdir. türk dili, dillerin en zenginlerindendir; jeter ki bu dil, šūrla[3] išlensin. ülkesini ve jüksek istiklalini korumasyny bilen türk milleti, dilini de jabanžy diller bojundurū(undan kurtarmalydyr/

/millī his ile dil araSYNDAki bā čok kuvvetLYDYr. dilYn millī ve zengYn olmASY millī hisSYn inkišĀfYNDA[2] bašlyža müessirDYr. türk dilY, dilLARYN en zenginLARYNDANDYr; jeter ki bu dil, šūrla[3] išlensYn. ülkeSYNY ve jüksek istiklalYNY korumaSYNY bilAn türk milletY, dilYNY dA jabanžy dilLAr bojunduruKYNDAn kurtarmALYDYr/

Tuvan

Шыяан ам. Буруңгунуң мурнунда, теве кудуруу черге дөжелип, те мыйызы дээргэ шаштыгып турар шагда дөртен бир угаанныг хаан чоруптур оо. Улуг-биче кода-хүрээлиг, улуг-биче лама-хууракты хаан күрүзүнүң херээн үзүп шиидер дөрт улуг чундуң дүжүметтиг, хаан боду таакпы-даа тыртпас […]

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2 ‹ɪncɪˈʃɑf› in Ergenç (1995) but *a* is long in TS and ÖTS. I take it to be a sign of a positionally lengthened vowel of the *kitap*, *-āby* ‘book, 3SG’ type.

3 ‹ˈʃuːɣ› in Ergenç (1995) but two syllables (šu(ūr) in TS and ÖTS. I maintain the former here for consistency.

/šyjān am. buruŋŋunuŋ murnunda, teve kudurū čerge döželip, te myjyzy dērge šaštygyp turar šagda dörten bir ugānnyg hān čoruptur ō. ulug-biče koda-hürēlig, ulug-biče lama-hūraktyg hān kürüzünüŋ herēn üzüp šīder dört ulug čunduŋ düžümettig, hān bodu tākpy-dā tyrtpas/

Yakut

Өлөөн төрдүгэр Үрэн диэн ааттаах эбэнки олорбута үһү. Кини оччотоҕу бириэмэгэ омугу элбехтик кыргыбыт. Кини эр бэрдэ диэн бочуоттаах ааты сүгэрэ эбитэ үһү. Кини аттыгар эмиэ Өлөөн батыытыгар Маҥан Хоппоо диэн эмиэ аатырбыт киһи баара, Үрэни өлөрө бараары оҥостуммута.

/ölō̃n tördüger üren diʲen āttāh ebeŋki olorbuta üńü. kini oччotoүu birjemege omugu elbehtik kyrgybyt. kini er berde diʲen bočwottāh āty sügere ebite üńü. kini attygar emje ölō̃n batȳtygar maŋan xoppō diʲen emje ātyrbyt kińi bāra, üreni ölörö barāry oŋostummuta/

Symbols

> = changes into | ≥ = forks to | → = derives to

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