

## Notes on an old problem of Hungarian historical vocalism: the sporadic (?) change of Uralic *\*u* > Hungarian *a, á*

This article discusses the alleged sound change Proto-Uralic *\*u* > Hungarian *a, á*. The etymologies manifesting this change that have been presented in earlier etymological literature are critically examined, and it is shown that a significant portion of them are wrong or based on outdated reconstructions. New explanations for many etymologies are presented, and possible causes for the few convincing examples of *\*u* > *a* are discussed.

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### 1. Introduction

The purpose of this article is to investigate certain problems of Hungarian historical vocalism and discuss the methodological problems involved in postulating “sporadic” sound changes and tendencies instead of regular sound laws.<sup>1</sup> The article consists of a presentation of methodology and an overview of recent studies on Hungarian historical phonology, including

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the discussion of Proto-Ugric vocalism and Old Hungarian evidence. After that, the suggested etymologies manifesting the lowering  $*u > a$  or  $*u > \acute{a}$  are discussed, and in the end, conclusions are presented.

The assumption of sporadic sound change is contrary to the Neogrammarian principle of regular sound change or sound law; the latter assumes that change is always regular (under the same conditions, the same phoneme changes in certain ways), whereas the former view assumes that sounds change in unexpected ways, and no regularity can be assumed. A term “tendency” is used by some researchers (such as Csúcs 2005; Róna-Tas 2017) to denote such sporadic change.

The development of Uralic  $*u$  in Hungarian is a good example of a situation where numerous different modern Hungarian vowels (at least *a*, *á*, *o*, *u*, *ú*, *ë*; Csúcs et al. 1991: 22–37, 65–66) have been assumed to reflect the same Proto-Uralic phoneme, without clear rules or conditions. In this article, the examples of an alleged sound change  $*u > a$ , *á* are analyzed, and it is shown that the development of  $*u$  in Hungarian is much more regular than has been hitherto assumed. The results show that resorting to evidence for “key languages”, notably Finnic, has resulted in a misleading picture of Proto-Uralic vowel reconstruction and thus has also led to erroneous views on vowel developments in the prehistory of Hungarian (see Kallio 2012 on the problems with Finno-centric vowel reconstructions). Although the change  $*u > a$ , *á* might seem like too marginal an issue for one article, there are actually surprisingly many etymologies showing this alleged change. I intend to return in future articles to other irregular changes in the prehistory of Hungarian.

In studies on Uralic historical phonology, the idea that sound change is sporadic has played a significant role, and this line of thought has been especially pursued in Uralic research done in Hungary (see e.g. Csúcs 2005: 8–9; WOT: 1036–1037; Honti 2013: 6; Róna-Tas 2017: 79; also Gerstner 2018 speaks of “tendencies” in his article on historical phonology in the most recent handbook of the history of Hungarian). Honti (2013: 6) sums up this attitude, stating that “sound changes are often less than ‘sound laws’;

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usually they are mere ‘tendencies of sound change’’. On the other hand, since the late 1970s a more rigorous line of research and historical phonology has emerged, represented notably by Pekka Sammallahti (1988) and Juha Janhunen (1981). The rigorous “Neogrammarian” line of research has gained recognition in more recent publications, and the idea of sporadic sound change has been criticized, with convincing arguments being presented in favor of the regularity of sound change (see especially Zhivlov 2010; 2014 and Aikio 2012; 2013b: 161; 2015; see also Abondolo 1996: 3–4 and Reshetnikov & Zhivlov 2011); Zhivlov (2014: 113) firmly explains the stark difference in the two approaches, arguing that as the regularity of sound laws is a basic principle, no sporadic developments can be accepted in a serious study of historical phonology:

The basic tenet of this methodology is the principle of regularity of sound laws (...). Taking this principle seriously means that we cannot invoke ‘sporadic developments’ as an explanation in historical phonology.

The most recent comprehensive studies on Uralic historical phonology and etymology follow the Neogrammarian approach; in addition to the ones mentioned above, Häkkinen (2007), Pystynen (2018), Metsäranta (2020), and Aikio (in preparation) should especially be mentioned as good examples.

In this paper, the methodological aim is to explain the developments with as little irregularity as possible, and consequently tendencies are *a priori* considered implausible explanations. It is naturally possible that some developments rejected in this paper will be revisited and rehabilitated by later research, if conditions for the apparent tendencies can be found.

Although the meaning of “tendency” is not often defined in the research literature, WOT (1036) and Róna-Tas (2017: 79) speak of strong and weak tendencies, assuming that strong tendencies are the ones that follow clear rules and show only very few exceptions or no exceptions at all. Weak tendencies, on the other hand, are the ones that most of the examples obey, but which show a significant number of exceptions. The strong tendencies, as described by Róna-Tas, can be compared to sound laws in that they usually have no exceptions. However, the idea of weak tendencies is, in my view, methodologically much more problematic, as it is difficult to determine how much irregularity is allowed in such cases.

It should be noted here that regular sound change is the mainstream view of historical linguistics (see handbooks like Anttila 1989: 57–65,

85–86; Campbell 1999: 17–18; Salmons 2020: 30). One can state that it would be impossible to work on historical phonology without expecting that phonemes change according to rules and not arbitrarily. The following quotation from Ringe (2004: 237) serves well to describe the situation and the importance of regular sound change:

Modern work in sociolinguistics has shown that the scenario just summarized is slightly oversimplified; most importantly, sound changes pass through a variable phase before “going to completion,” and occasionally the progress of a sound change is arrested in the variable phase, giving rise to irregularities (see, e.g., Labov 1994 for discussion). But the statistical preponderance of regular sound changes remains impressively massive, and it is almost always methodologically advisable to treat explanations involving irregular sound changes with suspicion.

A quite similar view is represented by Fox (1995: 136–137, 304), who acknowledges the sociolinguistic arguments against regularity in practice represented by Labov, but notes that in order for the comparative method to work, it is a necessary assumption that sound change is regular. Some other important handbooks of historical linguistics also accept the fact that sound change is not necessarily *absolutely* regular but it is still a useful or even necessary tool in historical linguistics, especially in research on sound change (see Campbell 1996; Kiparsky 2015: 70–72). Moreover, the exceptions to regular sound change often have some reasons behind them, such as taboo or the effects of word associations, sometimes also the role of spelling conventions, as listed by Kiparsky (2015: 70, endnote 14). Moreover, Campbell (1996) discusses such cases in detail and concludes that they do not present a serious obstacle to the idea that sound change is mostly regular. Kiparsky (2015: 72) also mentions lexical diffusion as one of the obstacles, but Labov (2020) offers a detailed discussion of this and concludes that even if sound change spreads gradually, it operates in a regular way.

It can be thus stated that all the major handbooks of historical linguistics stress the importance of regular sound change as the core of the comparative method, even if some irregularity is allowed. A clear statement against the regularity of sound change is presented by Clackson (2007: 31–33), who argues that it is not necessary to assume that *all* sound changes are regular. He notes that “most” sound changes are regular, and this gives enough proof for the historical-comparative method to work. In a way this can be understood in a similar vein as Ringe’s quotation above, meaning

that some degree of regularity has to be assumed in order for the comparative method to work. Clackson's remark has been criticized by De Vaan (2008: 1230).

In the history of Hungarian, the idea of irregular and sporadic change has been especially influential and has persisted for an especially long time (cf. the references above). This situation is partly due to the complicated phonological developments that have taken place in the history of Hungarian, as well as in the Ob-Ugric languages (Khanty and Mansi) which are usually grouped together with Hungarian under the Ugric branch. As it has been more challenging to explain the Hungarian/Ugric developments than those in Finnic or Saami, for example, it is rather understandable that such researchers have assumed that sound change simply is not regular. However, this assumption is mistaken and cannot be substantiated. In more recent research, such as Aikio (2002; 2006; 2015), it is shown that the Hungarian developments fit the reconstructions resulting from a rigorous approach to regularity.

One must state here that Hungarian historical phonology, and especially the development of vocalism, forms a special case in Uralic studies. The main problem is that the broad lines of developments leading to Hungarian are known but many details are uncertain; this has also been stated by Aikio (2022: 5). In contrast to Proto-Permic vocalism, which includes similar problems, Hungarian vowel history has been approached more through a *laissez-faire* approach. In this respect, it resembles the study of Mari historical phonology (see Aikio 2014a: 142; 2022: 5), and also the study of Ob-Ugric vowel history (Zhivlov 2006), which is obviously closely related to the problems of Hungarian vocalism through the close relationship of Ob-Ugric and Hungarian. The only truly Neogrammarian approach to Hungarian vocalism is Sammallahti (1988), which is by now outdated in certain points. An additional problem in Sammallahti's presentation is that it is heavily based on the traditional, binary classification of the Uralic family. Because of this, Sammallahti frequently projects some changes to Proto-Ugric without a real need, clinging onto the binary classification of Hungarian and Ob-Ugric. The problems in the reconstruction of Proto-Ugric vocalism and their relevance for the present article will be explained below.

An additional source of problems in the research into Hungarian and other eastern Uralic languages is the role of Finnic as a key language. The problems of Finnic as a key language in traditional Uralic reconstructions have been discussed by Kallio (2012); see also Abondolo (1996: 3-4).

## 2. Recent studies in the historical phonology of Hungarian

The most recent overview of Hungarian historical phonology is found in WOT (1011–1069). Unfortunately, this overview is based mostly on the etymologies of the UEW, which makes the picture skewed, and moreover the presentation of WOT follows the outdated method of “tendencies” instead of sound laws. This means that WOT does not bring much new information about the historical phonology of Hungarian. Some phonological issues are also discussed in the brief monograph of Honti (2017), written as a criticism of WOT. Also, Róna-Tas (2017), in a reply to Honti, deals with some issues of historical phonology. On the whole, these recent works offer good explanations for some individual etymologies, but their scrutiny of phonological developments does not give satisfying explanations for problems of Hungarian historical phonology.

An important work on the Uralic background of Hungarian is the recent article of Aikio (2018) which deals with some specific issues of the development of Proto-Uralic consonants in Hungarian. Aikio presents two new sound laws for Hungarian: PU *\*jŋ* > Hu *gy* (for example, PU *\*ajŋi* > Hu *agy* ‘brain’, PU *\*wajŋi* > Hu *vágy* ‘lust’) and PU *\*nč* > *r* (for example, PU *\*ponči* > Hu *far* ‘backside’, (derivative) *farok* ‘tail’; PU *\*künči* > Hu (derivative) *kör-öm* ‘nail’).

Relevant here is also the work of Tálós, who has in several works argued for a reconstruction of Proto-Uralic with two tongue-heights only, and has also written specifically on problems of Ugric and Hungarian historical phonology (see Tálós 1975; 1984). His views were followed in Abondolo’s (1996) brief monograph that approaches the Uralic vowel history from an Ob-Ugric point of view, and many of Abondolo’s remarks are also relevant for Hungarian. Even though the reconstructions and ideas of Proto-Uralic vowel rotation pursued by Tálós and Abondolo have not been widely accepted (but see Kümmel 2019; 2020, who frequently cites the Uralic reconstructions of Tálós), it is appropriate to mention them here as followers of a strict methodology. Their ideas have, in any case, been influential, and their remarks on many individual etymologies have proven useful. Even though the reconstruction of a Proto-Uralic high labial vowel *\*u* is not influenced by the idea of two tongue heights, Abondolo’s (1996) comments on the phonology of some Ob-Ugric etymologies will be relevant in this paper and they will be addressed below in the discussion of etymologies.

### 3. Problems in the reconstruction of Proto-Ugric vocalism

On the whole, the historical phonology of the Ugric languages (Hungarian, Khanty, and Mansi) is less well known than that of many other branches of Uralic, although some recent studies (Zhivlov 2006; 2014; Aikio 2015; 2018) have improved the situation. Especially problematic is the question of possible common sound changes shared by these three languages. Although Proto-Ugric changes are suggested by some sources like WOT and Sammallahti (1988), it remains unclear whether any common changes can be reconstructed when up-to-date etymological material is used. Some of these problems are discussed below.

The most problematic aspect of the question of an Ugric proto-language is that no commonly accepted reconstruction of Proto-Ugric phonology exists (see Bakró-Nagy 2013: 173–175 for a recent overview of certain problems of Ugric reconstruction). The only comprehensive, yet not widely accepted, presentations of Proto-Ugric are Sammallahti (1988) and WOT (1011–1069). It is actually methodologically rather surprising that most of the proponents of Proto-Ugric do not work with proper reconstructions of the Ugric proto-language, with even Honti (2017: 171), one of the main supporters of Ugric unity, noting that no commonly accepted reconstruction exists. The presentations of Sammallahti and WOT both include various problems, even though they are useful in many details. The biggest problems concern vocalism, and only those will be presented here in detail.

Sammallahti's (1988) reconstruction of vocalism can today be regarded as outdated in many points. A notable problem is that he assumes that Proto-Finno-Ugric, the stage preceding Proto-Ugric, had long vowels, which were then shortened in Proto-Ugric. This cannot be correct: Sammallahti's idea of Proto-Finno-Ugric long vowels is based on Janhunen's (1981) reconstruction of a Proto-Uralic phoneme \*x that was vocalized in Proto-Finno-Ugric, and it has been convincingly demonstrated by Aikio (2012) that this idea is not correct. Sammallahti's Proto-Ugric reconstructions are thus for the most part identical with modern reconstructions of Proto-Uralic: for example, Proto-Ugric \**ńili* is identical with Aikio's Proto-Uralic \**ńili*. The other problematic points in Sammallahti's reconstruction include the reconstruction of full and reduced vowels; it is unclear what this opposition is really based on.

There are also more general problems of a methodological nature. While Sammallahti's Proto-Ugric vowel history must be applauded for its attempt to follow the Neogrammarian principle rigorously, his attempt is complicated by the assumed binary structure of the Ugric and Uralic family tree. Because he assumes that intermediary forms have to be reconstructed for the vowel systems of Proto-Hungarian, Proto-Khanty, and Proto-Mansi, he resorts to complicated and flip-flopping changes. For example, Sammallahti (1988: 500, 504) assumes that Proto-Uralic *\*e* changes to Proto-Ugric *\*i* in *\*-i*-stems, but this change is hard to substantiate, as at least Hungarian shows no special development of *\*e* in such a context.

The same can be said of Sammallahti's Proto-Ob-Ugric reconstruction. It is necessary to keep in mind here that also no commonly accepted reconstruction of Proto-Ob-Ugric vocalism exists – also, Honti's (1982) Ob-Ugric vowel reconstruction has been criticized for postulating changes that are required only by strictly following a binary division of the Uralic family tree (Tálos 1984: 90, 97), but for which there is no actual evidence in Khanty and Mansi.

The problems with the Proto-Ugric phonology reconstructed by WOT are different in nature. It is also outdated, but mostly because it is based on the outdated material of the UEW (WOT also mentions Sammallahti's 1988 article as one source, but it remains unclear what parts of the presentation are based on that). WOT has to be given credit for its criticism of some of the UEW's more problematic etymologies and for commenting on some sound changes in greater detail, but as a whole the Proto-Ugric reconstruction is not very useful. The binary model problem is naturally true also in this case. An even bigger problem is the use of tendencies instead of sound changes (see WOT: 1036 for discussions of the methodological premises) to explain phonological developments. There are also problems in the use of Ob-Ugric evidence: for example, WOT assumes that in Proto-Ugric the vowels in the unstressed syllables became reduced, and only one vowel is reconstructed for this position, but this clearly cannot be correct, as the Uralic *\*-a-* and *\*-i-*stems have different reflexes in Khanty and Mansi, showing that they could not have merged in Proto-Ugric. Also the retention of vowels in the second syllable in the earliest Mansi written sources (from the 18th century) makes the idea of reduced vowels in Proto-Ugric quite unlikely (for example, "Old" Mansi *амба* [amba], modern North Mansi *āmp* 'dog', see Honti 1982: 126).



Although many details of Proto-Ugric are unclear, it is quite clear that there were few if any changes in vocalism common to the predecessor of Hungarian, Khanty, and Mansi. The vowel system that can be reconstructed on the basis of these three languages is very close to Proto-Uralic.

#### 4. Notes on the Old Hungarian evidence

When Hungarian historical phonology is discussed, the situation is different from many other Uralic languages in that Hungarian has a long written history, going back to the eleventh century. However, the interpretation of Old Hungarian material often presents challenges, especially when the vowels are concerned.

The problems of Old Hungarian orthography are connected to sound changes that took place during the Old Hungarian period. Because lowering of vowels ( $u > o$ ,  $o > a$ ) indeed took place during this period, it is often difficult to determine what exactly the phonetic values of graphemes like *u* or *o* are, and often the material is open to various interpretations (see Bárczi 1958; Benkő 1980; E. Abaffy 2003).

Benkő (1980: 89–121) describes in detail the problems involved in the interpretation of Old Hungarian vowels. There are differing views among researchers on how the vowel graphemes in the Old Hungarian texts should be interpreted, and this is complicated by changes that took place over the Old Hungarian period. A notable problem concerning Old Hungarian *u* is that as both labial *â* and illabial *a* existed in the language at this period, there was a “chain shift” in the graphemes: if *a* was [a] and *o* was [â], then *u* was used sometimes to mark [o]. On the other hand, *u* was also used to mark [u] (Benkő 1980: 89–94; Korompay 2018: 87). Benkő (1980: 94–95) notes that it is far from certain what kind of linguistic situation this practice actually reflects.

Naturally, this does not mean that the Old Hungarian evidence would play no role at all in research into the history of Hungarian vocalism. But it means that much of the evidence is controversial, and all the etymologies should be investigated separately.

## 5. The case of Proto-Uralic \**u* and its reflexes in Hungarian

### 5.1. Overview of the problem

It is often argued that there are cases of PU \**u* being reflected by *a* and *á* in Hungarian: see for example Barczy (1958), Aikio (2002: 45, 48), and Maticsák (2020: 388). The UEW lists 12 cases of Hungarian *a*, two cases with Hungarian variants with *a* and *o*, and four cases of Hungarian *á* (Csúcs et al. 1991: 37); the etymologies with uncertain vowel reconstruction are not included in this calculation. Sammallahti (1988) assumes such a change in only five words, including reconstructions where \**u* is given as one possibility – the difference is partly due to different etymological material but also to different reconstructions of some Proto-Uralic words. Some additional examples have been suggested by Aikio (2002). There has been little discussion on the conditions of this change, however. The problem is that these cases are in the minority, as usually the reflex of PU \**u* is Hungarian *o* or \**ú* (such as PU \**wud’i* ‘new’ > Hu *új*, PU \**kuńci* ‘urine’ > Hu *húgy* ‘piss’); some convincing examples of \**u* > Hu *u* are also known (such as PU \**kuńa* ‘close the eyes’ > Hu *huny*). The conditions for the different developments are not quite clear, but some cases of long *ú* can be explained through contraction caused by glides preceding or following the vowel, such as PU \**uji-* ‘swim’ > Hu (derivative) *úsz-ik* (see also the example of Hu *új* above).

The development of Proto-Uralic \**u* in Hungarian is thus far from settled, and it would require more than one paper to solve this question. However, the words showing \**u* > *a* or *á* are a good place to start investigating the problem, as this group of words seems to include several unclear etymologies with competing explanations. In sieving out the problematic etymologies displaying this alleged sound change, the way is opened to investigating the problems of PU \**u* in Hungarian on the basis of more reliable etymological material.

The history of Proto-Uralic \**u* is also complicated by the fact that some words allegedly showing Proto-Uralic \**u* with aberrant reflexes in Hungarian should be reconstructed with PU \**ɛ* instead, such as PU \**jɛxi-* (UEW: 103 \**juɣe-* (\**juke-*)) ‘drink’ > Fi *juo-*, Hu *i-*, *iv-* (see Zhivlov 2014: 115–117).

It should be added here that even though the reflexes of other Uralic back vowels in Hungarian are better known and regular developments have been suggested, there are also problems with the reflexes of Proto-Uralic \**a* in Hungarian, as both long *á* and short *a* are found as reflexes of this vowel

(compare PU \**ćara*- ‘dry’ > Hu *száraz* but PU \**pata* ‘cauldron’ > Hu *fazék*). A possible solution is presented by Zhivlov (2014: 117–124), but many details still remain unclear.

In the following, the etymologies possible showing Hungarian long vowels *a* or *á* as the reflexes of Proto-Uralic \**u* are critically analyzed. It will be determined whether the etymologies themselves are valid, and in the cases where the Uralic or Ugric etymology turns out to correct, it will be discussed whether the vowel \**u* can indeed be reconstructed as the predecessor of Hungarian *a* or *á*. After analyzing the etymologies, possible causes for the different reflexes are briefly discussed.

The etymological material has been collected from the main Uralic etymological sources: the UEW, Sammallahti (1988), and the recent articles of Aikio (2002; 2006; 2015), as well as Aikio’s (2013a) handout which lists the Uralic words with back vocalism.

## 5.2. Suggested Uralic and Ugric etymologies allegedly manifesting \**u* > Hu *a* or *á*

PU \**jupta*- ‘tell’ > (?) Hu *játszik*, (?) OHu 1198 *ioatec*, Fi *juttele*- ‘speak, tell’, *juttu* ‘tale’, Md *jovtams*, *joftams* ‘tell, say’, Ngan *débtadasa* (< PSam \**jəpta*- ‘speak, tell’, cognate also in Selkup, Janhunen 1977: 35) (UEW: 104; Helimski 1999; Aikio 2002: 48; 2013a)

The Uralic (or Finno-Ugric) background of the Hungarian word is an old idea (see the references in the UEW). However, it is considered uncertain by EWUng (640) and UEW (s.v. *jukta*-) due to semantics, but the possible connection to Proto-Uralic \**juktV*- ‘tell’ is mentioned. EWUng (640) notes that *u* > *a* in Hungarian is unusual. EWUng notes that the oldest meaning of the Hungarian word *játszik* is ‘tell (erzählen)’ rather than ‘play’ as is prevalent in modern Hungarian. This is close to the meanings attested in related languages, but it is unclear whether we are really dealing with the same word in Old and Modern Hungarian. The word does not appear in Sammallahti’s (1988) list of Proto-Uralic words, and SSA does not mention Hungarian *játszik* among the cognates of Finnish *juttu*, *juttele*-.

Regarding the Uralic reconstruction, in earlier sources such as the UEW \**juktV*- was preferred, but we now know that \**juptV*- has to be the correct reconstruction, thanks to Helimski (1999) who added the Samoyedic cognate – the earlier reconstruction would have accounted for the Hungarian, Finnic, and Mordvin forms, but Samoyedic requires \**pt* as \**kt* would

have developed into \**t* in Proto-Samoyedic (Sammallahti 1979: 46–47). As there are no other Hungarian words that derive from a Uralic word with a cluster \**pt*, it is difficult to assume whether the vocalization of the stop \**p* could have played a role in the development of the vocalism. However, the etymology remains uncertain because of the semantic problems mentioned above, and an uncertain etymology can have only little value in discussions of Hungarian historical vocalism.

PU \**juri-* ‘spin’ > (?) Hu *jár* ‘go’, Kh Trj *jörəγLə-* ‘forget’ (< PKh \**jurəγLə-*), Ms P *jōrl-* id. (< PMs \**jɔrɣL*), SaN *jorrat* ‘go around’, Ud *jiromi-* ‘go astray’, TN *yurə°-* ‘forget’ (< PSam \**jürə-*) (UEW: 102; Aikio 2002: 46–48)

Reconstructing Proto-Uralic \**juri-* is convincing based on Aikio’s (2002: 46–48) argumentation, but the relationship of Hungarian *jár* ‘go’ to this word family remains problematic. The UEW reconstructs Proto-Uralic \**jori-*, but Aikio (2002) argues that the Proto-Uralic word probably had \**u* instead. It should be noted that the UEW considers Hungarian *jár* an uncertain reflex of this Uralic stem. There are some problems in the reconstruction of the Uralic word’s vocalism, as the Proto-Samoyedic vowel \**ü* is irregular, but the Saami, Permic, and Ob-Ugric cognates point clearly to \**u* (Aikio 2002: 47–48). Aikio notes that \**j-* might have caused the secondary fronting in Samoyedic. Aikio also points to the irregularity of *u* > *á* but notes that there are parallels for this irregular lowering, though he does not discuss the issue in detail. Although Hungarian *jár* is discussed by Aikio (2006) as a cognate to PU \**juri-*, the etymology is not mentioned in Aikio’s (2013a) list of words. EWUng also mentions PFU \**jorkV-* as a possible pre-form for the Hungarian, while the UEW (102) also reconstructs a proto-form \**jorkV-* and lists Hungarian *jár* as an uncertain cognate.

However, it is possible that Hungarian *jár* is not a Uralic word at all. A Turkic etymology for *jár* has been suggested by Palló (1982: 123–125), who assumes a loan from Turkic \**yor(i)-* ‘nomadize, wander’ (> East Old Turkic *yori-* id.). WOT (1200–1203) is critical towards the etymology, but the criticism stems more from the problematic connection of Hungarian *jár* to the verb *nyargal* ‘gallop’, both of which have been derived from the same Turkic source. As is noted by WOT, it is obvious that *jár* and *nyargal*<sup>2</sup> are

2. The etymology of *nyargal* ‘gallop’ is not clear, but it is interesting that many other Hungarian horse terms are of unknown origin, such as *nyerég* ‘saddle’ (see Holopainen 2022: 108–109) that also features word-initial *ny-*. Hungarian *nyargal* might be a loan from a substrate language, like *nyerég* probably is.

not regularly related (a change  $*j > *ny$  would be completely irregular), but it can be argued that *jár* could still be a Turkic loan. There seem to be no phonological or semantic problems in the Turkic etymology of *jár*: Palló notes that there are few examples of Turkic  $*o$  being reflected as Hungarian *á* in loanwords, but phonetically this substitution is not implausible. Furthermore, WOT (1120) lists some examples of this substitution, such as Hu *áporodik* ‘decay’ ← West Old Turkic  $*op(u)ra-$  ‘grow old’, Hu *váj* ‘hollow out’ ← West Old Turkic  $*vay-$  id., Hu *vályú* ‘trough, tray’ ← West Old Turkic  $*valuy$  ‘trough’. As the Uralic background of *jár* is uncertain, the idea that the Hungarian word is borrowed from  $*yor(i)-$  ‘nomadize, wander’ is a plausible etymology that can be rehabilitated.

There is one problem with the Turkic etymology, however, namely that there are no good parallels for the Turkic glide  $*y$  corresponding to  $*j$  in Hungarian.<sup>3</sup> While there are no phonetic problems in deriving *jár* from  $*yori-$ , the Turkic loans in Hungarian reflect the sound change  $*y > Oghuric *j > Chuvash ś$  (for example, Hungarian *gyűrű* ‘ring’ ~ Chuvash *śerĕk* id.; Hungarian *szél* ‘wind’ ~ Chuvash *śil* id.); see WOT (1092–1093) for a discussion of the different reflexes. However, we must keep in mind that  $*y$  was retained in the “Common Turkic” branch (cf. East Old Turkic *yüzük* ‘finger ring’). Although the majority of the early Turkic loanwords in Hungarian point to an Oghuric (Chuvash-type) donor language, Róna-Tas and Berta (WOT: 1071) admit that they cannot exclude the presence of non-Oghuric languages among the group they lump under the umbrella term “West Old Turkic”, so a borrowing from an Common Turkic type language would probably be possible. Further research on this problem is clearly needed, but it does not seem to be an impossible idea to derive *jár* from a Turkic source that has  $*y-$ .

PU/PUG  $*kad'ma$  (UEW:  $*kud'mV$ ) > Hu *hamu* ‘ashes’, Kh Vj *kajem* < PKh  $*kāj'm$ , Ms TJ *kōl'ām* < PMs  $*kūl'm$  id. (UEW: 194; Abondolo 1996: 93; Zhivlov 2014: 120)

Abondolo (1996: 93) has argued that Proto-Ugric  $*kad'ma$  is a derivative of  $*kad'a-$  ‘leave’ (the same explanation is presented also by Aikio *apud* Zhivlov 2014: 120). This is a plausible idea semantically, and  $*-ma$  is a known deverbal nominalizer in Proto-Uralic, so this etymology can be accepted. The  $*a$  vocalism presumed by this explanation is reflected regularly

3. I am grateful to Christopher Culver for pointing this out to me.

by Hungarian *a*, Proto-Khanty *\*ā*, and Proto-Mansi *\*ū* (cf. Zhivlov 2014: 124). The UEW's (194) idea of reconstructing *\*kudmV* is impossible, as none of the Ugric languages regularly point to *\*u*, and it is unclear why *\*u* was reconstructed by the UEW in the first place.

PUg *\*kaja-* or *\*koja-* > Hu *hajt* 'treiben, jagen', Ms So *χujt-* 'tempt' (< PMs *\*kujt-*) (UEW: 854)

The UEW gives two alternative reconstructions for this Proto-Ugric word, but neither is completely clear. Uralic or Ugric *\*a-a* stems are usually reflected as long *\*ū* in Mansi (PU *\*kala* 'fish' > Ms *\*kūl* id.). However, several examples of Proto-Mansi short *\*u* reflecting Uralic *\*o-a* stems can be found in the material of Aikio (2015: 60–62), such as PU *\*śona* 'sledge' > PMs *\*śun* id., PU *\*kod'ka* 'spirit' > PMs *\*kul'* id., and PU *\*kompa* 'wave' > PMs *\*kump* id.

However, it is also possible that the words in Hungarian and Mansi are not related at all. The meanings of the two verbs are rather different: even though 'tempt' and 'drive, pursue' can probably be derived from a common source, the connection is not that obvious.

Furthermore, Aikio (2014b: 1–2) has recently connected the Mansi word to Proto-Khanty *\*kūć-* 'tempt' (> North Khanty *χuš-*; this was earlier, e.g. in SSA s.v. *kutsua*, connected cautiously to Finnish *kutsu-* (< Proto-Finnic *\*kuccu-*) and North Saami *gohccu-* (< Proto-Saami *\*koććō-*) but Aikio shows that the etymology is impossible due to irregular phonological correspondences; the Finno-Saami word is probably a loanword from Baltic *\*kūaitija-* 'call; sue', as also noted by SSA as one possibility<sup>4</sup>). The correspondence between Mansi *\*kujt-* and Khanty *\*kūć-* is regular, and Proto-Uralic (Proto-Ob-Ugric?) *\*kujtV-* can be reconstructed as their common predecessor. It is probable that Hungarian *hajt* is unrelated, as it is also semantically quite far from the meaning 'call' or 'tempt' that can be reconstructed for the (Proto-Ob-Ugric?) predecessor of the Ob-Ugric words.

4. Also an earlier, Proto-Indo-European etymology for Fi *kutsu-* has been suggested (Koivulehto 1986: 272–274 assumes a loan from Proto-Indo-European *\*gʷotj-*, reflected in Armenian *kočem* 'name, call somewhere'), but Suomen vanhimman sanaston etymologinen verkkosanakirja (s.v. *kutsua*) deems this less likely, as the Baltic etymology is phonologically plausible and more convincing in the case of a loan limited to Finnic and Saami (<https://sanat.csc.fi/wiki/EVE:kutsua>).

PU \**kujV*, \**kowja* or (?) \**koja* > Hu *háj* ‘fat’, Fi *kuu*, MdE *kaja*, Ma *kaja*, *koja*, Ud *kej*, *kwaj* (UEW; Sammallahti 1988: 544; Aikio 2013a: 15; Zhivlov 2014: 137; YSuS s.v. *kuu*<sup>2</sup>)

The Uralic word is reconstructed with \**u* in the UEW, but later research has shown that this reconstruction has to be erroneous, even though various problems in the reconstruction of this word remain. The reconstruction of \**ow* (YSuS) rather than \**u* explains at least some of the reflexes more regularly (see Kallio 2018: 253). The word is not mentioned in Aikio’s (2015) list of Uralic \**o*–*a* stems, however.

For Hungarian, \**o* is clearly better than \**u*, as parallel examples of \**o* > *á* abound (PU \**kota* ‘hut’ > Hu *ház* ‘house’, PU \**ola* ‘jaw’ > Hu *áll* id.). In Mari one would rather expect \**u* (\**ońća* > *užaš*, \**ćoda-* > *šudala-* ‘course’). It is unclear, however, how \**ow* would regularly develop in Mari. A possible parallel example would be Proto-Mari \**amaš* ‘mosquito curtain’ (Mari *omaš*, *amaš*), from Proto-Uralic \**owdimi* or \**awdimi* (unclear reconstruction, see Aikio 2015: 65). Also the Finnic cognate (Fi) *uudin* : *uutime-* shows similar vocalism as *kuu* < \**kowja*. On the other hand, Proto-Mari \**â* often reflects Proto-Uralic \**a*. This would be a possible reconstruction for Hungarian, too. The Mordvin cognate rather points to an \**a*–*a* stem. The Permic vocalism is difficult: Udmurt *kwaj* could reflect Proto-Uralic \**kowja*, cf. Udmurt *kwa-la* < Proto-Uralic \**kota*, but the Komi cognate could not be derived from such a form. The vowel correspondence between the Komi and Udmurt cognates is in any case unexpected and fits any Proto-Uralic vowel combination poorly.

Both the UEW and EWUng also mention Turkic \**qoyi* ‘thick (flowing)’ in the context of *háj*, but it is not clearly stated what kind of relationship the Turkic word should have with the Uralic etyma. On purely phonological grounds, *háj* could probably be explained as a loan from Old Turkic \**qoyi* (cf. the discussion of vocalism in the context of Hungarian *jár* above), but semantically the Uralic *comparanda* denoting ‘fat’ are closer.

To sum up, there are various problems in the reconstruction of the Proto-Uralic word, probably because we do not know enough about the development of \**Vw* sequences in the Uralic languages. But none of the languages here, with the possible exception of Finnic, point to Proto-Uralic \**u*, and as we have seen, also the Finnic vowel can be explained otherwise.

PU *\*kulki-* > Hu (der.) *halad* ‘proceed’, Fi *kulke-* ‘go, wander’, SaN *golga-* ‘run, float’, Md E *kolge-* ‘drip, flow’, Ko *kjalal-* ‘drift downstream’, Kh V *кѡγәл-* ‘stride’ (< PKh *\*kōγәl-*), TN *xäsy°* ‘go; become’ (< PSam *\*kāj-*; cognates also in Forest Nenets, Yurats, and Mator; Janhunen 1977: 51) (UEW: 197; Sammallahti 1988: 544; Aikio 2013a: 13)

This is a convincing Proto-Uralic etymology, and the reconstruction *\*kulki-* is universally accepted. *\*u* is clearly the only possibility based on comparative evidence (Finnic, Saami, Mordvin, Permic, and Samoyedic unambiguously point to a reconstruction *\*kulki-*). This is therefore a plausible example of Proto-Uralic *\*u* being reflected by Hungarian *a*, unlike many of the etymologies discussed here.

The reasons for this might be due to a conditional sound change: the possible factors could be the word-initial *\*k* or the word-internal consonant cluster. Here *\*k* has been lost through spirantization, which could have influenced the development of the vowel and caused the lowering.

PU *\*kumpa* or PU *\*kompa* ‘wave’ > Hu *hab* ‘foam’, Kh V *kōmp* ‘wave’, Kh V, Vj *kump* (< PKh *\*kūmp*), Ms So *χump* id., P *kup* < PMs *\*kump*, (?) Fi *kumpu* ‘hill’, (?) SaL *kābbā* ‘a small hill’, SaS *gabpe* ‘small mountain’ (Hasselbrink 1981–1985: 537) MdE *kumboldoms* ‘wave, rise in waves’ (cognate according to Aikio 2013a), MaE *wüt-kowə*, MaW *koe, ko*, Ko (?) *gibad*, TN *χampa*, Ngan *koŋhu*, Slk (Taz) *qōmpj* (< PSam *\*kāmpā*, cognate also in Forest Nenets and Enets; Janhunen 1977: 59) (UEW: 203–204; Sammallahti 1988: 537; Aikio 2013a: 12; 2014c: 83; 2015: 60)

The Proto-Uralic vocalism of this word is somewhat uncertain: many branches point to *\*o* rather than *u*, and it is not even clear that all the words mentioned in earlier sources as cognates really belong into the same word family. Sammallahti (1988: 537) reconstructs Proto-Uralic *\*kompa*. Such a reconstruction would account well for the Hungarian word, as *\*o > a* is a regular sound change. Proto-Samoyedic *\*kāmpā* certainly cannot reflect *\*kumpa* regularly, and also the Ob-Ugric words point to *\*o* rather than *\*u*. It is not completely certain that Finnic *kumpu* is a real cognate here, as no meaning ‘wave’ is attested in Finnic. Lule Saami *kābbā* that is listed as a cognate by the UEW (203–204) is not mentioned by Aikio (2015: 60), nor is the assumed Komi cognate *gibad* that shows an aberrant *g*.

In addition to the mismatches in vocalism, there are also rather large semantic differences among the cognates: some languages denote ‘wave’ (Hungarian ‘foam’ can be derived from an earlier meaning ‘wave’), others



‘hill’. It is probable that the words denoting ‘hill’ and ‘wave’ are originally different stems that have been mixed up in some Uralic languages.<sup>5</sup>

In conclusion, it seems probable that Hungarian *hab* reflects Proto-Uralic *\*kompa* that is reflected also at least by Samoyedic and the Ob-Ugric languages. This word is not an example of Proto-Uralic *\*u* > Hungarian *a*.

PU *\*kunta* or *\*konti* > Hu *had* ‘army’, Kh V *kāntəy* ‘Khanty’ (< PKh *\*kintəy*), Ms TJ *kānt* ‘army’ (< PMs *\*kānt*), (?) Fi *kunta* ‘community’, (?) Est *kond* id. (UEW: 206–207, 208; Sammallahti 1988: 544; Aikio 2013a: 15)

This etymology involves similar problems as *\*kompa* > *hab* mentioned above. It is possible that the traditional comparison includes more than one PU stem. The reconstruction *\*kunta* in the UEW is based on Finnic evidence, but even the Finnic cognates (Finnish *kunta* ~ Estonian *kond*) are not regular. Zhivlov (2014: 140) reconstructs *\*konti*- ‘hunt, murder’ and assumes that Hungarian *had* is a reflex of this Proto-Uralic stem.

Mansi *\*ā* can regularly reflect PU *\*o* in an *-i*-stem, and also the Khanty form with *\*i* can be derived from this, if it is an ablaut variant of *\*a* (Zhivlov 2014: 124). Based on Hungarian and Mansi, the Proto-Uralic form had *\*o*, and even though it seems that various details require further research, Hungarian *had* does not reflect a Proto-Uralic form that had *\*u*. All the Ugric cognates can be derived from *\*konti*.

PU *\*kuńci* > Hu *hangya* ‘ant’, Fi *kusiainen*, Ko *koʒul*, Ud *kuʒilʹi*, Ms TJ *künš* id. (< (?) PMs *\*kunš-*) (UEW: 209; *kuńce*, *kuće*)

This Proto-Ugric etymology involves various problems, and the entire etymology should probably be rejected. The etymology is listed by SSA, but it is missing from Sammallahti’s (1988) list of words. Hungarian *ngy* as the reflection of PU *\*ńc* is irregular, as is noted already by the UEW, and the Permic vocalism does not point to *\*u* (Proto-Permic *\*i* would be the regular outcome). It remains unclear what the exact connection between these words is, but they are certainly no regular cognates. The Finnish form *kusiainen* has probably been influenced by *kusi* ‘piss, urine’ due to folk etymology (SSA s.v. *kusiainen*).

5. Recently Zhivlov (2023: 162, 164) has also reconstructed two separate stems: Proto-Uralic *\*kumpi* ‘hillock, tussock’ and *\*kompa* ‘wave’.

It remains a possibility that the words in various Uralic languages are loanwords from somewhere, but it is difficult to say anything more certain, as no source form is known. If Finnish *kusiainen* is unrelated, the words in Mansi, Hungarian, and Permic could reflect a loan from a substrate language in Central Eurasia, but more research would be needed before this can be proven. See Holopainen (2022: 105–107) for a discussion of other potential *Wanderwörter* with a similar distribution. Further research on the etymology of Hungarian *hangya* is certainly needed, but as the Uralic etymology has to be rejected as irregular, this is, again, not an example of a change  $*u > a$  in Hungarian.

To sum up, the Uralic etymology shows too many irregularities to be accepted as such. It is a matter of methodology whether such irregular etymologies can be accepted.

PU  $*ku\eta i-$  > Hu *hó* : *hava-* ‘moon’, Fi *kuu*, Md E *koη*, Kh Kaz *χῦw*, Kam *ki* id. (UEW: 211–212; Sammallahti 1988: 537; Aikio 2013a: 13)

Hungarian *hó* ‘moon’ shows the oblique stem *hava-*, meaning that the word originally had *a* and the *ó* in the nominative is due to later contraction. In the various sources different Proto-Uralic reconstructions have been given, concerning both the word-internal consonant and the vocalism. Erzya dialectal *koη* can regularly reflect only  $*ku\eta i-$ , but the rest of the forms are ambiguous. In Hungarian,  $*\eta$  is usually reflected by *g* (the change  $*\eta > *\eta k$  is shared with Ob-Ugric), but also many cases of  $\eta$  disappearing and leaving only a hiatus filler are known. Probably there is a conditioned change that we do not understand completely. Bakró-Nagy (2003) presents a detailed account of the reflexes of  $*\eta$  in the Ugric languages, but the exact conditions of the different reflexes remain unclear; a possible solution has been suggested by Zhivlov (2015), who assumes different developments of  $*\eta$  in vocalic and consonantal stems in Ugric, with later analogical leveling, but the matter requires further research.

Sammallahti (1988) reconstructs Proto-Uralic  $*kixi-$ . However, most languages seem to point to  $*u$ . Together with  $*kulki-$  > *halad* this is one of the few cases where Hungarian probably really does show *a* as a reflex of Proto-Uralic  $*u$ .

PU *\*kura* (? *\*kurV*) ‘crooked’ > ? Hu (der.) *harántos* ‘slanted, skewed’, Ko *kirišen*, Ud *kiriž*, Kh V *kör* ‘curve in a river’, TN *xəra* ‘bend, curve; reason’ (< PSam *\*kərā*, cognates also in Forest Nenets, Selkup, and Kamas, Janhunen 1977: 55) (UEW: 220; Aikio 2013a)

This etymology is a complicated one. Aikio (2013a) considers Hungarian *horog* ‘hook’ a reflex of PU *\*kura* ‘crooked’, assuming Finnic *\*kura* ‘left’ (> Est *kura*) as cognate in addition to the Permic and Samoyedic forms listed above. Hu *horog* and *harántos* could not regularly reflect the same Proto-Uralic word due to the different vocalism. Semantically *horog* ‘hook’ would be an unproblematic reflex of PU *\*kurV* ‘crooked’.

Also, *harántos* ‘slanted, skew’ could semantically be connected with the Uralic words denoting ‘curve’ or ‘curved’, but as *horog* shows the regular development *\*u* > *o*, it is more probable that *horog* is the real reflex of Proto-Uralic *\*kura*. The UEW also mentions verbal forms with *hár-* occurring in Hungarian dialects, such as *hárít-* ‘ablenken, abwenden’; these are semantically close to *harántos* and probably belong to the same Uralic word family.

PU *\*kura-* > Hu (der.) *harmat* ‘dew’, Fi *kuura* ‘hoarfrost’, (?) SaL *kārrō-* ‘hoarfrost forms in the trees’, (?) Ko *gjer*, (?) Ud *ger*, Slk *kurə* ‘fine snow, hoar frost’, Kam *kuro* ‘frost, hoarfrost’ (UEW: 215; Sammallahti 1988: 544)

Despite being included in Sammallahti’s (1988) list of words, the Uralic etymology is quite problematic. Aikio (2013a) does not mention the etymology. The suggested Permic cognates are not regular: the relationship between the Komi and the Udmurt words is irregular (the Komi sequence *iĕ* does not regularly correspond to Udmurt *ĕ*), making even the reconstruction of a Proto-Permic word impossible.<sup>6</sup> The suggested Samoyedic cognates could formally reflect a Proto-Uralic word with *\*u* (cf. Sammallahti 1988: 495), but it is unclear whether this Selkup word really exists, as it is not found in dictionaries (such as Alatalo 2004).

The Finnic and Hungarian words could technically be derived from *\*kura*, but the similarity might also be accidental. However, the exact composition of Hungarian *harmat* is unclear; if the word is a reflex of a stem *\*kura*, it is uncertain what the part *-mat* represents, as the word does not look like any regular derivative. SSA (s.v. *kuura*) considers the Uralic etymology unlikely. Also, a competing Germanic etymology for the Finnic

6. Aikio (personal communication) notes that the Komi word has probably emerged through contraction.

word also exists: the word has been derived from Proto-Germanic *\*skūra* (> Middle High German *schur* ‘hail(storm)’), see SSA (s.v. *kuura*). LÄGLOS (s.v. *kuura*) considers the Germanic etymology possible but uncertain; also the Uralic etymology is mentioned in LÄGLOS, but it is noted that the vocalism is irregular. In my view, the Germanic etymology is clearly a better explanation for the origin of the Finnic word. It remains unclear whether the suggested Lule Saami cognate could also be borrowed from the same Germanic word. The reconstruction of a Proto-Uralic *\*kura* is in any case doubtful, and it is most unlikely that Hungarian *harmat* derives from any Proto-Uralic word that had *\*u*.

UEW also lists similar forms in the Turkic, Tungusic, and Mongolic languages (such as Turkic *qırayu* ‘hoarfrost’, Tungusic *kiraha-* ‘fall (of fine snow)’, Mongolic *kırayu* ‘hoarfrost’). It cannot be ruled out that some of the Uralic forms could be explained as loans from Turkic, but it is notable that a possible Turkic origin of *harmat* is not mentioned by WOT. As Hungarian *harmat* means ‘dew’, it is not semantically very close to these Altaic words.

PU *\*kuri-* > Hu *harag* ‘anger’, Kh Vj *korəm-* (< PKh *\*karəm-*), Ms K *χor-* (< PMs *\*kɔr*) (Zhivlov 2006: 117), MdE *kor* ‘anger’ (UEW: 220–221)

Here Mordvin *kor* could regularly reflect *\*u*, although also other preforms for Mordvin *o* are possible. The Ob-Ugric cognates show the same vocalism as the reflexes of PU *\*puna-* ‘braid’ (> Mansi *\*pɔn*, Khanty *\*panəl-*, Zhivlov 2006: 117), so it seems possible that the Ob-Ugric cognates reflect a Proto-Uralic *\*kuri-* or *\*kura-*. There are eight etymologies displaying this Ob-Ugric vowel correspondence in Zhivlov’s material, which is a notable number of etymologies considering the generally small number of Proto-Uralic stems that can be reconstructed. On the other hand, most of the Uralic *\*u*-words in Aikio’s (2013a) account of Uralic vocalism do not display this vowel correspondence in Ob-Ugric, and Zhivlov (2014: 121) has noted that the development of Proto-Uralic *\*u* in Khanty is not fully understood and requires further research. Because of this, it seems uncertain whether a Proto-Uralic form *\*kuri-* can indeed be reconstructed. A more convincing option is presented by Aikio (in preparation) who considers Hungarian *harag*, Mordvin *kor*, and the Ob-Ugric words reflexes of Proto-Uralic *\*kira-*; this cognate set also includes Finnish *kiro* ‘curse’ and North Saami *garru* id. Other examples of disharmonic *\*i-a* stems reflected by Hungarian *a* have been suggested, such as Proto-Uralic *\*wiča-* > Hungarian *vásik* ‘wears away’ already by Sammallahti (1988: 551), so the change can be considered regular.

PU *\*kuttV* > Hu *hát* ‘back’, Kh J *juw kutsa* ‘under the tree, in the shelter of the tree’, *kutəλ* : *juw kutəλnə* ‘in the shelter of the tree’, Ms KU *χūtəj* ‘in the shade’ (< PMs (?) *\*kūtəj*), Slk (Taz) *qottä*, *qott* ‘backwards’ (UEW: 225; Alatalo 2004, No. 1934)

This etymology limited to Ugric and Samoyedic is mentioned as a plausible Proto-Uralic etymology, but it is missing from more recent word lists of Sammallahti (1988) and Aikio (2013a) and the scarce attestation in Ob-Ugric and Samoyedic raises suspicion. This is also one of the very few suggested examples of Hungarian *á* reflecting Proto-Uralic *\*u*.

Abondolo (1996) mentions the Ugric cognates but omits the Selkup cognate without comment. Abondolo reconstructs *\*iï*, following his own ideas of Proto-Uralic tongue-height and length. A central vowel *\*e̞* is unlikely, as it would not yield *\*ū* in Ob-Ugric. In his unfinished *Marginalia ad UEW*, Helimski (manuscript) mentions the Proto-Uralic etymology but reconstructs PU *\*kottz*, arguing that North Selkup *o* cannot reflect *\*u* but the Ugric allows either *\*o* or *\*u*. However, due to semantics, word-class differences (only an adverb in Samoyedic), and the limited distribution of the word within Uralic, Helimski does not consider the etymology completely certain.

Although Helimski rightly refutes the reconstruction with Proto-Uralic *\*u*, his arguments about the vocalism of this word are not entirely convincing: Hungarian *á* can reflect either *\*a* or *\*o*, and also Mansi *\*ū* can point to both an *\*a-a* and *\*o-a* stem. *\*u* is out of the question here. East Khanty *u* can reflect Proto-Khanty *\*ū*, which would not fit any of the possible vowels mentioned here: in *\*a-a* stems Proto-Khanty *\*ū* appears regularly after a labial or word-initially (Zhivlov 2014: 117). However, Aikio (personal communication) points out that East Khanty *u* could also reflect Proto-Khanty *\*ō*, which is also the middle ablaut grade of Proto-Khanty *\*ā*. The vowel correspondence Proto-Mansi *\*ū* ~ Proto-Khanty *\*ā* could reflect an older *\*-a*-stem. It seems possible, then, that the Hungarian, Mansi, and Khanty cognates could be explained from Proto-Ugric *\*katta*.

The connection with the Selkup word remains uncertain, and the similarity might also be accidental. The Uralic reconstruction *\*kuttV* should in any case be abandoned.

PU (?) \*kuttV > Hu *hat* ‘six’, Fi *kuusi*, SaN *gutta*, MdE *koto*, Ma *kut*, Ko *kvať*, Ud *kwat*, Kh V *kut*, Ms TJ *kat* id. (UEW: 225; Sammallahti 1988: 544)

The exact reconstruction of this Proto-Uralic numeral is disputed. The Hungarian can point to \**u* or \**o*, the Saami cognate is irregular from \**kuttV*. Similar problems are involved in the reconstruction of many Uralic numerals (such as \**kulmi* ~ \**kolmi* ~ \**kormi*, see Abondolo 1996: 94), meaning that the word has only limited value in the discussion of Hungarian historical vocalism. However, if we assume that \**u* > *a* is regular in this environment (after \**k*), there are no problems in deriving Hu *hat* from \**kuttV*.

The Ob-Ugric vocalism is likewise problematic: Zhivlov (2006: 140) reconstructs Proto-Ob-Ugric \**kātu*, PMs \**kāt*, and PKh \**kōt*. This is not a regular correspondence of any PU back vowel in Ob-Ugric, and also Abondolo (1996: 95) notes that the correspondence is unusual.

It is dubious whether the problems with the vocalism of this Proto-Uralic numeral can be solved, but as several branches of Uralic show contradictory vocalism, this etymology cannot be used as evidence of a change Proto-Uralic \**u* > Hungarian *a*.

PU \**kuwli-* or \**kowli-* > Hu *hall* ‘hear’, Fi *kuule-*, SaN *gulla-*, MdE, M *kule-*, Ma *kola-*, Ud, Ko *kil-*, Kh V *kəl-*;

PU \**kunta-li-* > Hu *hall*, OHu *hadl*, Ms So *χūntl-* (< PMs \**k<sup>w</sup>āntəl-*), Kh V *kunyal-* (< PKh \**kuntəyl-*), Fi *kuuntele-* ‘listen’

(UEW: 196–197; Sammallahti 1988: 544; Aikio 2006: 17; 2013a: 15; YSuS)

The UEW assumes that Hungarian *hall* represents contamination between two Uralic verbs, \**kunti-li* and \**kuli-*. This makes the analysis of this etymology challenging. Both verbs can clearly be reconstructed for Proto-Uralic, but the reconstruction \**kuli-* is now outdated. Finnic long *uu* points to an earlier *Vw* sequence that could be reconstructed as either \**uw* or \**ow* (cf. PU \**kowsi* > Fi *kuusi*, Aikio 2012: 242), but the Permic vocalism more clearly points to \**u(w)*. The Saami vocalism (PSa \**u*) also points to \**u*, cf. PU \**suxi-* > *suhka-* ‘row’.

Abondolo (1996: 95) reconstructs the pre-form of Hungarian *hall/hadl* as \**kanta-li-*, and he assumes that the Finnic high vowel *uu* is due to an ablaut variant. This explanation cannot be correct, but the pre-form \**kanta-li-* would indeed be more probable for the Hungarian word. The Finnic vocalism might be explained through contamination with the unrelated but semantically close word family *kuule-* (cf. *kuulella*, SSA).

Due to the cluster *dl*, Old Hungarian *hadl* is clearly a reflex of Proto-Uralic *\*kVntili-*, and it is quite difficult to say for certain whether the reflexes of the two Uralic verbs have merged in the history of Hungarian.

PU *\*mu-* (?) ‘this, that; another (?)’ > Hu *más* ‘other’, *másik* ‘another’, *ma* ‘today’, *majd* ‘soon’, *most* ‘now’, Mari *molâ* ‘other’, Fi *muu* id., SaS *mubpie* ‘other; second’, Ud *mïd*, Ko *mëd* ‘another’, Ms TJ *mēt* ‘another, second’ (UEW: 281–282)

Kulonen (1993: 197–199) assumes that two pronominal stems, *\*mo-* and *\*mu-*, can be reconstructed for Proto-Uralic, as the vocalism in several branches of the family points to two distinct stems (for example, the Saami forms like *mubpie* as well as Udmurt *mïd* and Komi *mëd* point to a stem *\*mu-*). Also, in Hungarian, there are forms like *most* ‘now’ pointing to *\*u* in addition to *más* which points instead to *\*o*. Hungarian *ma* probably also points to Proto-Uralic *\*mo-*. Finnic *muu* can reflect different Pre-Finnic forms (cf. the discussion of *fa* and *puu* under PU *\*pawi* below).

Helimski (1997: 301) suggests that Hungarian *ma* is possibly a cognate to Proto-Samoyedic *\*mä* ‘today’, retained only in Mator *mā* ‘today’ and these words would reflect the same Proto-Uralic lexeme. This is an interesting point that warrants further research, but it is not immediately clear how the Uralic word should be reconstructed (*\*mawi* would probably yield both Hungarian *ma* and Proto-Samoyedic *\*mä* regularly). The limited distribution of the word is also suspicious.

PU *\*muča-* ‘illness’ > Hu *hagy-máz* ‘typhoid fever’, Ko *mïž*, Ud *mïž* ‘illness’, Kh V *mɔč* ‘Schaden’, Ms *maš* ‘hole’ (UEW: 283, Aikio 2002: 13–15; 2013a)

It is assumed in the UEW that Hungarian *hagy-máz* reflects an opaque compound consisting of two words of Uralic origin. The idea of a compound as such is plausible, and the part *hagy-* has a convincing Uralic etymology (see Aikio 2002: 13–15; 2015: 60), but the issue with *\*muča-* is more problematic. A Hungarian sibilant *z* from *\*č* is completely irregular, and there are no convincing parallels for *á* as the reflex of PU *\*u* (cf. the discussion of *hát* above). This makes the etymology very dubious.

Mari *mâž*, *muž* is mentioned as a cognate by the UEW, but the Mari word is not listed by Aikio (2013a). Problems with the Mari etymology have been noted also by Bereczki (2013: 153–154), who writes that Mari *ž* from *\*č* is irregular, but he argues that parallels exist. It remains unclear whether the Mari word could be connected here somehow, for example as a loan

from Permic. Proto-Saami *\*mocēs* (> South Saami *muhtsies* ‘slovenly, untidy, messy’) is mentioned as a new cognate by Aikio (2013a).

PU *\*muŋki* > Hu *mag* ‘seed’, *maga* ‘self (reflexive pronoun)’, Ma *monγār* ‘trunk, body’, Ud *mugor*, *mīgor* ‘body, form, build, shape, bodily appearance, Gestalt’, Ko *mīger* ‘туловище, стан’, TN *maŋk°* (< PSam *\*māŋkut* ‘bosom’, also in Forest Nenets and Enets, Janhunen 1977: 88–89) (UEW: 286–287; Aikio 2013a: 12)

The Proto-Uralic word is reconstructed as *\*moŋki* by Aikio (2013a: 12), who adds Proto-Samoyedic *\*māŋkut* to this cognate set. There is no evidence for a reconstruction with *\*u*, so this word does not serve as an example of the alleged sound change in Hungarian.

As a side note it can be mentioned that Helimski (2002: 108) separates Hungarian *mag* ‘seed’ from *maga*, arguing that the latter is borrowed from an Alanic word that yielded Ossetic (Iron) *myg*, (Digor) *mugæ* ‘sperm’ (this idea was suggested already by Abaev 1965: 531). This etymology remains possible, especially in the light of semantic differences of *mag* and *maga*, although the vowel substitution in this Alanic etymology is not quite clear and involves similar problems as the Uralic etymology. (The Ossetic word possibly reflects Proto-Indo-Iranian *\*muka-*, cognate to Latin *mūcus* ‘snivel’, Greek μύξα, Abaev 1958–1989 II: 137. However, this Indo-European etymology is far from clear, see Beekes 2010: 977–978; De Vaan 2010: 392 so the background of Ossetic *y/u* is not quite clear here.)

PU *\*muri-* > Hu *mar* ‘bite, gnaw, etch; mill’, Kh *mərj-* ‘break’, Ms So *mur-* ‘break’, TN *mərda-* ‘break through’ (< PSam *\*mərə-*, cognates in all Samoyedic languages except Mator, Janhunen 1977: 87–88), Fi *murta-* ‘break’ (UEW: 288, Sammallahti 1988, Aikio 2013a: 13)

Aikio lists Finnish *murta-*, Khanty *\*mərāj-*, and Proto-Samoyedic *\*mərə-* as reflexes of Proto-Uralic *\*muri-*. It is not completely clear that Hungarian *mar* indeed belongs here, especially as the semantic connection is not obvious, inasmuch as the other cognates denote breaking, whereas the primary meaning of Hungarian *mar* is ‘bite’. The semantics are not an obstacle as such, but together with the phonological problem they can be considered to speak against the etymology.

An alternative etymology for Hungarian *mar* has been suggested: Katz (2003: 283–284) assumes that the Uralic words were borrowed from Indo-Iranian *\*marH-*, attested in Old Indo-Aryan *mar-*, *mṛṇāti* ‘crushes’



(EWAia II: 321–322). \**u* might be a substitution for the Indo-Iranian zero-grade \**r̥* attested in forms like the present *mṛṇāti*. Formally Hungarian *mar* could be a later Iranian loanword, cf. Ossetic (prefixed) *læmaryn/læmarun* ‘press out, squeeze out’, even though in this case, too, semantic problems remain. In any case, the possible Uralic origin of Hungarian *mar* is so uncertain that this etymology cannot be used to prove that Proto-Uralic \**u* can yield *a* in Hungarian.

PU \**pawi* > Hu *fá* (< *fá* with secondary shortening) ‘tree’, Fi *puu*, Ma *pu*, Ko *pu*, Ud *pu* (< PP \**pŭ*), TN *pya* id. (< PSam \**pä*, cognates in all Samoyedic languages, Janhunen 1977: 117) (UEW: 410–411; Sammallahti 1988: 539; Aikio 2013a: 9; Holopainen et al. 2017: 115, footnote 5; YSuS s.v. \**puu*)

The \**u* found in earlier sources like the UEW is probably reconstructed mostly based on Finnic evidence. However, the other languages do not clearly point to \**u*, instead \**ow* or \**aw* would probably be possible, as Finnic long *uu* can probably result from various *Vw* sequences (Aikio 2012: 241–243; see also Kallio 2018: 253). Aikio (2013a) and YSuS reconstruct \**aw* here, and this has been supported by Holopainen et al. (2017: 115, footnote 5). Hungarian and Samoyedic quite clearly rather point to \**a*, whereas Mari and Permic are ambiguous.

PU \**pućirta-* > Hu *facsar* ‘squeeze’, Fi *puserta-*, Ko *pićirt-*, Ud *pićirt-*, Kh V *posər-* (< PKh \**pasər-*) id. (UEW: 397; Aikio 2013a: 14)

Here the evidence for \**u* is quite overwhelming: Finnic and Permic both point clearly to \**u*, and also the Khanty reflex can be derived from that. The Uralic etymology is probably correct, and this is one possible case of the change \**u* > *a* indeed taking place in Hungarian. However, Hungarian *cs* is not the regular reflex of Proto-Uralic \**č* (Sammallahti 1988: 517 mentions Hungarian *csomó* as the only example showing such a reflex, assuming a secondary affricate), and the inclusion of Hungarian *facsar* into this cognate set cannot be regarded as completely certain.

The issue is also complicated by the UEW’s idea that the verb \**puć3-r3-* (as reconstructed by the UEW) includes the same verbal root as \**puńća-*, \**puća-* ‘press, wring out’, reflected by Khanty (V, N) *pos-*, (DN) *pus-*, Mansi (TJ, P, So) *pos-*, (KU) *pas-*, Komi *pićki-*, Mari (W) *pânze-*, (E) *puńće-*, *puńćala-*, Lule Saami *pâhtjē-*, and related forms in other Saami languages (UEW: 404). The idea clearly cannot be correct as such, as the cognates allegedly reflecting \**puńća-*, \**puća-* are irregular and it is clear that they

cannot reflect the same Proto-Uralic verb (for example, the Komi and Saami forms cannot reflect a cluster *\*ńć*, but this is required by Mari, and the Saami vocalism is also irregular). It remains dubious whether any of the forms listed under this verb in the UEW can be connected with *\*pućirta-*.

It has been noted (EWUng: 348) that also a variant *csafar* has risen in Hungarian through metathesis, and the meaning and phonological shape of *csafar* have been influenced by the unrelated verb *csavar* ‘turn (something), waggle’. The unexpected vowel and affricate in *facsar* might also have been influenced by a contamination with *csavar*, although it is admittedly difficult to prove this.

PU *\*puna* ‘hair’ > Hu *fan, fon* ‘pubic hair’, Kh V *pun* ‘hair, wool, feather’, Ms TJ *pon* ‘feather, hair’, Fi *puna* ‘red’, Md *pona* ‘hair, wool’, Ma *pân* ‘hair, feather’ (UEW: 407 s.v. *puna*; Sammallahti 1988; Aikio 2013a: 14)

This is a convincing Uralic etymology accepted by all the relevant sources, and it is clear that *\*u* has to be reconstructed for Proto-Uralic. It is unclear why both variants *fan* and *fon* are attested in Hungarian, but it can be assumed that *fon* is the regular form here while *a* reflects a dialectal development: both forms are attested already in Old Hungarian (EWUng: 354). As pointed out above in Section 3, the lack of clarity in the interpretation of Old Hungarian vocalism has been noted by Benkő (1980: 89–94), but as forms with *a* and *o* can be found in both modern Hungarian and already in Old Hungarian sources, it is probable that *fan* indeed existed in Old Hungarian. Further research on this dichotomy is needed, but it should be noted that as phonemes do not split spontaneously, it would be good to find some reason for the dichotomy *fan* ~ *fon*. The variant *fon* in any case shows the expected development *o* < *\*u*.

PUg *\*pur3* > Hu *far, farok* ‘tail’, Kh V *pir* ‘back part’ (UEW: 407, 880)

Aikio (2018) argues that Hungarian *far, farok* reflect Proto-Uralic *\*ponči* ‘tail’. This is a convincing explanation in the light of Aikio’s new sound law *\*ńč* > Hu *r*. Aikio also notes that the vowel correspondences between the Hungarian and Khanty cognates suggested in the UEW are irregular, so the UEW’s reconstruction of a Proto-Ugric noun *\*purV* has to be rejected in any case.

PU *\*runjkV* > Hu *rág* ‘chew’, Ms L *rågn-* id., TN *lunjkiba-* ‘gnaw, nibble’, Ngan *l’ungüša* ‘gnaw’ (UEW 426)

This is an irregular and unconvincing etymology, as noted already by the UEW. None of the cognates suggested here can reflect a pre-form *\*runjkV*-regularly. Mansi *g* from Proto-Uralic *\*ŋk* would be an irregular development that has no parallels in other etymologies. Tundra Nenets *l* cannot regularly reflect PU *\*r*, and it is quite probable that Proto-Uralic phonotactics did not allow words beginning with *\*r-* (see Hahmo 2003/2004). In Sammallahti’s (1988) list of words, no Uralic cognates with word-initial *\*r-* are listed.

PU *\*šukkv* ~ *\*šakkv* ‘piece, bit, part’ > Hu (dial.) *szak* ‘small piece’ (also in compounds *észak* ‘north’, *éjszaka* ‘night’, and in the derivatives *szakad*, *szakít* ‘tear’), Kh Vj *sāk* ‘crumbled’, (?) Fi *sukku* ‘state of being crushed’ (UEW: 457)

This etymology offers again no real evidence for Proto-Uralic *\*u*, as the Uralic etymology is considered uncertain even by the UEW, and none of the languages point really to the reconstruction of Proto-Uralic *\*u*. The suggested Finnic cognate *sukku* is poorly attested and a semantically dubious cognate. East Khanty *ǎ* is not the regular reflex of Proto-Uralic *\*u*. The UEW is right in assuming that Hungarian *szak* and Khanty *sāk* can indeed belong together, and it can be noted that they can reflect Uralic *\*šakki* or *\*šokki* (cf. Zhivlov 2014: 124).

PU *\*šuwī* or *\*šawī* > Hu *száj* ‘mouth’, Fi *suu*, SaS *tjovve* (< PSa *\*čuve* or *\*čovę*) Ma *šu* (< PMa *\*šu*), Ud *šu* ‘mouth’, (?) Ko *šu-* in compounds *šu-keš* ‘kvass’, *šu-kešaš-* ‘drink (verb)’ (< PP *\*šu*) id., Ms K *sunt* ‘mouth of a river’, So *sūp* ‘mouth’ (< ? PMs *\*su-*) (UEW: 492–493; Aikio 2013a: 14; YSuS s.v. *suu*)

This etymology is a similar case as *\*pawī* ‘tree’ above: although the Uralic etymology as such is plausible, various details of the reconstruction are unclear. Among the Uralic cognates, only Finnic forms like Finnish *suu* point to Proto-Uralic *\*u*, but as it was discussed above, various Proto-Uralic sequences of *\*Vw* can result in Finnic *uu*. Proto-Permic *\*u* does not point regularly to Proto-Uralic *\*u*, and Mari *u* can also reflect various pre-forms, meaning that this is not a certain case of *\*u* > *a* in Hungarian. The Permic cognates are considered uncertain already by the UEW. Mansi short *u* points to Proto-Uralic *\*u* rather than *\*a* (see also the discussion of Hungarian *szád* below). Proto-Saami *\*čuve* or *\*čovę* could not regularly reflect Proto-Uralic *\*a*.

PU \**šuwinti* > (?) *szád* ‘mouth of a river’, Ms K *sunt*, SaKld *čont* (< PSa \**čuntę*) id. (Aikio 2013a: 14)

It is unclear whether this Uralic word reflects the same stem as Hungarian *száj* ‘mouth’ and its cognates discussed above. The vocalism of the Saami cognates does not point regularly to Proto-Uralic \**u*, but Aikio assumes \**uw* that could have probably developed into \**u* in Saami. Due to the limited attestation and unclear vowel developments in both Saami and Hungarian, this word does not give reliable proof of the sound change \**u* > *a* in Hungarian.

PU \**šurV* ‘cut’ > (?) Hu *irt-* ‘destroy’, (?) *arat* ‘harvest’, Ko *šer-*, Ud *šir-*, Kh V *lört-*, O *lärt-*, TN *tyarocy* ‘be divided; share’ (< PSam \**tār-*, cognates in all Samoyedic languages, Janhunen 1977: 154–155) (UEW: 503–504; Sammallahti 1988: 550; WOT: 1232)

This is a rather problematic etymology, as both *irt* and *arat* are considered possible reflexes of the same stem \**šurV* in the UEW; this cannot be correct, as it is impossible to connect these forms etymologically due to the different vocalism. The UEW (492) considers *arat* uncertain. The whole existence of a Proto-Uralic verbal stem \**šurV* is based on very uncertain evidence, as at least the suggested Samoyedic cognates clearly do not regularly point to \**u*. The Permic and Khanty cognates can reflect Proto-Uralic \**šurV*, but neither Hungarian *arat* or *irt* reflects \**šurV* regularly. Nevertheless, the UEW’s explanation of the origin of Hungarian *irt* is accepted by WOT. However, *arat* is considered a Turkic loan (see below). Sammallahti (1988) also mentions the etymology, although with a question mark, reconstructing \**šj/ura-* ‘remove’ and mentioning only Hungarian *irt* as a cognate. Sammallahti does not mention the Samoyedic forms listed in the UEW.

WOT (70–71) considers Hungarian *arat* a possible loanword from the Old Turkic verb \**or-* ‘mow’ (> East Old Turkic *or-* ‘mow (grass), reap (cereal crops)’), perhaps from its unattested causative form \**or(a)t-*. This Turkic etymology is phonologically and semantically plausible. The etymology of *irt* remains open and requires further research, but due to the probable Turkic origin of *arat*, it is improbable that *irt* is related to it through a lexical split.

PU *\*tukti* > Hu *tat*, Kh V *tōγat*, MaW *tāktā*, Ko *tīk*, TN *tade* ‘crossbar’ (UEW: 534, Sammallahti 1988: 550; Aikio 2013a: 14)

The Mari, Permic, and Samoyedic cognates point to *\*u*. Also, the Khanty form can be derived from *\*u* regularly. The cognate set is regular, so this appears to be one of the few genuine cases of PU *\*u* > Hu *\*a*. It can be assumed here that the loss of *\*k* in the cluster *\*kt* has impacted the development of *\*u*. Aikio noted this word as a probable example of an “irregular lowering” *\*u* > *a* in Hungarian. However, Aikio did not deal with any of the examples in detail, and as loss of velar consonants (stop *\*k* or spirant *\*x*) in word-internal position is involved in many other etymologies showing this lowering (see the discussion of *halad*, *tó* : *tava*-), it can be argued that this change is not irregular but occurred under certain conditions.

PUG *\*tul-* > Hu *táltos* ‘sorcerer’, Kh Kaz *təat* ‘help, relief (in sickness or poverty)’, *təata* ‘without (bigger) difficulty, without noise; suddenly’, N *tolt* ‘Riese (eigtl. Zauberer)’, *toltn* ~ *tolten* ‘with magic’, Vj *tolt* ‘fever’ (< PKh ? *\*tolt-*), Ms N *tült(en)* ‘easily’ (< PMs *\*tült-*) (Honti 1982: 188; UEW: 895; Abondolo 1996: 44; WOT: 841–843; Honti 2017: 62–67)

The Proto-Ugric etymology in the UEW involves numerous problems and it has been doubted by Abondolo (1996: 44) and WOT (841–843). Abondolo notes that the Ugric etymology involves various problems and it is not even certain that the Khanty words grouped together in the UEW are related to each other, while Honti’s Proto-Khanty reconstruction is problematic. Also, semantic problems can be added to this etymology.

WOT lists a possible Turkic etymology for *táltos*, assuming that Hungarian *táltos* < ? *\*taltučV* is a loan from West Old Turkic *\*taltutči* ‘the one who exercises loss of consciousness’ (derived from a Turkic verb *\*tal-* ‘faint’). This explanation is plausible, as Hungarian *á* ← Turkic *\*a* is a well-attested substitution, and *s* can also be derived from earlier *\*č* without problems. Honti (2017: 62–67) discusses both the Ugric and the Turkic etymology in detail, analyzing especially the semantic developments, and he supports the Ugric etymology. Honti does not offer any specific arguments against the etymology presented in WOT, however.

PU *\*tuli-* > Hu *talál* ‘find’, Fi *tule-* ‘come’, Ma *tola-*, TN *tosy°* id. (UEW: 535; Aikio 2002: 29–30)

The Uralic etymology of Hungarian *talál* is considered uncertain by the UEW due to semantics, as all the other cognates point to the meaning ‘come’. There is no compelling reason to assume that *talál* is from *\*tuli-*. A more convincing alternative has been suggested by Aikio (2002: 29–30), who assumes a possible connection with PU *\*tolwa-* or *\*talwa-* ‘bring’ (> SaN *doalvut*, Nganasan *tojbu-* ‘take, transport, deliver’, Kam *tu-* ‘arrive; reach’ < PSam *\*tajwa-*). Hu *a* from PU *\*a* (or *\*o*) would be a regular development (Zhivlov 2014: 124). However, also in this case the semantic connection of the Hungarian word with the rest of the cognates is not quite transparent, and the etymology remains somewhat uncertain. In later works, Aikio (2013a; 2015) does not list the Hungarian word among the reflexes of PU *\*talwa-* or *\*tolwa-*.

PU *\*tuna-* > Hu *tan-*, MdE *tonado-* < PMd *\*tonadə-*, Ma *tunema-* < PMa *\*tūnemä-* ‘get used to, learn’, Ko *tunal-*, Ud *tunal-* < PP *\*tūn-* ‘seer, soothsayer’, *\*tūnal-* ‘foretell’; TN *tənarasy* ‘train, teach’ < PSam *\*tənā-* ‘teach, train’, cognates also in Enets, Forest Nenets, and Selkup, Janhunen 1977: 147 (< Pre-Samoyedic *\*tun-ta-*) (UEW: 537; Sammallahti 1988: 550; Aikio 2013a: 14; in preparation)

The Proto-Uralic verbal stem *\*tuna-* is attested only in derivatives in Hungarian, Mordvin, Mari, and Samoyedic. In modern Hungarian, a word *tan* is attested, but this is a modern back-formation from the verbs *tanul*, *tanít* (EWUng: 1477–1478). It is unclear whether Komi *tun* reflects the underived stem, but most Permic reflexes are clearly derivatives. Sammallahti gives the Uralic reconstruction as *\*toni-*, but Aikio (2002: 44–45) reconstructs *\*u*, noting that the Hungarian cognate is “apparently irregular”. Concerning the stem vocalism, the UEW reconstructed *\*tuna-*, and although Aikio (2013a) reconstructed *\*tuni-*, he has more recently (in preparation) convincingly argued that the word was an *-a*-stem *\*tuna-* (both Mordvin and Samoyedic point to an *\*-a*-stem).

Proto-Uralic *\*o* would be a more regular predecessor of Hu *a*, and the Permic cognates can point to *\*o* as well, so they are ambiguous in this sense. However, the Mordvin cognate points to earlier *\*u*, and also the Mari word can be regularly derived from *\*u*. Aikio’s arguments are convincing, and the reconstruction *\*tuni-* can regularly explain most of the cognates.

The Hungarian word is the most problematic one in this cognate set, as the vowel *a* does not fit any of the rules described above. However, the vowel *a* might be explained through contamination with the unrelated word *tanú* ‘witness’ which is a loan from West Old Turkic *\*tanug*, cf. East Old Turkic *tanug* ‘witness’, a derivative of the verb *tani-* (WOT: 848–852). In earlier etymological literature, it was occasionally assumed that *tanú* and *tan-* are etymologically related, and even though this is not the case, it is easy to assume that a connection has been made between the two similar verbs by Hungarian speakers through folk etymology. It is also possible that instead of the noun *tanú*, the speakers of Proto-Hungarian borrowed the Turkic verb *\*tani-*, and the native *\*tuni-* has merged with the borrowed, phonologically similar verb. This kind of situation is difficult to prove, but a parallel case is Finnish *ahta-* (< Proto-Finnic *\*akta-*), which is a Uralic verb semantically influenced by a Baltic loan.

It has been already suggested by Ikeda (2000: 66) that the Hungarian verb was semantically influenced by Turkic *\*tani-*. Ikeda does not comment on the phonological developments, however.

To sum up, Hungarian *tan* can be included among the cognates of Proto-Uralic *\*tuni-*, so Aikio’s statement that this is an irregular reflex of *\*tuni-* is plausible as such. However, it is probable that the *a* vocalism is the result of influence from an unrelated Turkic word.

PU *\*turV* > Hu *tar* ‘withers’, *tarja* ‘cow’s spine with flesh’, Kh V *tur* ‘neck’, Ms TJ *tor* id., ? Fi *turja* ‘back of the neck’ (UEW: 538)

Hu *torok* ‘throat’ is probably the real, regular cognate here (Aikio 2013a: 15). The relationship to *tar*, *tarja* is uncertain. The two Uralic stems *\*turV* and *\*tura* listed in the UEW probably belong together somehow. The issue is not quite clear, but *torok* in any case shows the expected reflex of Proto-Uralic *\*u*. Further research into the etymology of *tar* and *tarja* would be needed, and it is possible that these forms are unrelated to Proto-Uralic *\*turV* or that they show later dialectal developments.

PU *\*tuxi-* ‘lake’ > Hu *tó* : *tava-* ‘lake’, Kh V *tõγ*, Ms TJ *tō*, Ko *tj*, Ud *tj*, TN *to* id. (UEW: 532, Sammallahti 1988: 540, Aikio 2013a: 14)

This word displays a regular morphophonemic alternation in modern Hungarian, where Hu *ó* is due to contraction of the sequence *aw* (retained in the oblique stem *tava-*). Most languages (including Permic) point clearly to PU *\*u* rather than *\*o* as reconstructed by the UEW. This is thus probably another case of *\*u* > *a* in Hungarian.

PU *\*u-* ~ *\*o-* ‘that’ > Hu *az* ‘that’, ? MdE *ombo* ‘another’, Ud *otj̄n* ‘there’ (UEW: 332)

The UEW gives parallel reconstructions, with *\*u-* as one option. This pronominal stem is usually reconstructed as *\*o-*, see recently Janhunen (2020: 132), who assumes that the pronominal *\*o-* found in Hungarian *az* is connected to the Proto-Uralic copula *\*o-* (> Proto-Finnic *\*oma* ‘is’, *\*omat* ‘they are’ > Veps *om*, *omad* id.). This does not fit the Mordvin evidence very well, as *\*o* would not yield Mordvin *o*, but Hungarian *a-* can be regularly derived from Proto-Uralic *\*o*. The vocalism of Proto-Uralic pronominal stems is in general very complicated to reconstruct (see also the discussion on Hungarian *más* above), but there is no compelling reason to reconstruct *\*u* here.

PUg *\*urV* ~ *\*arV* > Hu *aránt* ‘against’, *iránt*, *ěránt* ‘into direction’, Kh V *ur*, Ms TJ *or* ‘mountain ridge’ (UEW: 833–834; EWUng: 622)

The UEW presents a Ugric reconstruction with alternative vocalism. In EWUng, it is stated that *\*ur3* is the likely reconstruction, and no reconstruction with *\*a-* is mentioned. The assumed Khanty and Mansi cognates are grouped under a different PU stem, namely *\*wara* ‘mountain, hill’ (> SaN *várri*, Nganasan *béru* ‘mountain, cliff’, Kam *bōr* ‘mountain, ridge’) by Aikio (2012: 233) and Zhivlov (2014: 120): this explanation is phonologically regular, and there is no reason to reconstruct a separate Ugric stem to account for the Ob-Ugric forms. Whatever the etymology of Hu *aránt* is, it cannot reflect PU *\*wara*, as the word-initial *\*w-* should have been retained. The relationship between *aránt* and *iránt* requires further research, but neither of these words can be derived from a reconstruction *\*urV*. A full account of the etymology of this word family would require a careful philological discussion of the Old Hungarian data, but as the alleged cognates listed in the UEW have been shown to be unrelated to these Hungarian words, this word does not belong in discussions of Proto-Uralic *\*u*.



## 6. Conclusions

Based on the analysis above, a significant part of the etymologies manifesting the alleged change of *\*u* to *a* or *á* in Hungarian turned out to be wrong on some level: many etymologies were shown to be implausible, whereas some cases of this sound change were based on reconstructions that turned out to be wrong, even if the etymologies themselves are correct. The results show that there is little reason to assume a sporadic change *\*u* > *a* or *\*u* > *á* in the history of Hungarian.

However, some plausible examples displaying this change remain, and it can be argued that *\*u* > *a* (but not *\*u* > *á*) indeed took place in the history of Hungarian under some conditions. The convincing Uralic etymologies that clearly show this change are the following: *\*kulki-* > *halad*, (?) *\*kuwli-* > *hall*, *\*kuŋji/kuwi* > *hó : hava-*, *\*tukti* > *tat*, *\*tuxi* > *tava-*. In addition to these, the etymologies of *facsar* and *fan* have a Uralic background that was considered as plausible or probable in the discussion of etymologies. It is possible that some words that show disputed vocalism also reflect *\*u*, but at the present state of research this cannot be shown and further research is needed before the issue can be settled. The change *\*u* > *a* is reflected in a very small group of etymologies, and it is dubious whether far-reaching conclusions on historical vocalism can be drawn based on them.

However, most of these words involve the loss of the velar stop *\*k* or the velar spirant *\*x* in word-internal position: *\*k* is lost in *\*kulki-* and *\*tukti-*, and *\*x* in *\*tuxi-*. A possible explanation to account for this change is that the loss of *\*k* and *\*x* caused the lowering of the preceding vowel *\*u* that then merged with *o* that regularly developed into *\*a* in *\*-i-*stems. For *hall* (< Old Hungarian *hadl*) and *\*kuŋji/kuwi-* a similar explanation does not hold as such, but as *hall* can be assumed to reflect contamination of Proto-Uralic *\*kuwli-* and *\*kantili-*, the vowel *a* can be explained as a regular reflex of the *\*a* of the latter Uralic verb. If *hó : hava-* goes back to *\*kuŋji*, it can be assumed that *\*ŋ* first became *\*x* and was lost after that, causing the lowering as happened in *tó : tava-* < *\*tuxi-*.

The rules presented above do not explain all the possible examples. However, the discussion has shown that a significant majority of the examples can be explained otherwise, and it can be claimed that the fact that most of the etymologies allegedly manifesting this change can be rejected shows that the methodological principle of regular sound change can lead to a clearer picture of Uralic and Hungarian historical phonology.

Ante Aikio (personal communication) notes that in the case of *\*turja* > Hu *torok*, *tarja* and *\*puna* > Hu *fan*, *fon*, the Ob-Ugric reflexes show similar correspondences, and it is possible that a different vowel combination should be reconstructed in such cases.

It is certainly possible that further research will find additional examples of words that fit the cautious conclusions presented above. It is also possible that some further convincing examples of Proto-Uralic *\*u* > Hungarian *a* will be presented, and the conditions for this development will become more apparent. It is in any case clear that there is much to do concerning the reflexes of *\*u* in Hungarian and the Ob-Ugric languages.

### Abbreviations

Est	Estonian	Ms	Mansi
Fi	Finnish	K	East Mansi (Konda)
Hu	Hungarian	KU	East Mansi (Lower Konda)
Kam	Kam	L	West Mansi (Lozva)
Kh	Khanty	N	North Mansi
	DN South Khanty (Demjanka, Narygin)	P	West Mansi (Pelym)
	J East Khanty (Jugan)	So	North Mansi (Sosva)
	Kaz North Khanty (Kazym)	TJ	South Mansi (Janychkova)
	N North Khanty	Ngan	Nganasan
	O North Khanty (Obdorsk)	OHu	Old Hungarian
	Trj East Khanty (Tremjugan)	PFU	Proto-Finno-Ugric
	V East Khanty (Vakh)	PKh	Proto-Khanty
	Vj East Khanty (Vasjugan)	PMa	Proto-Mari
Ko	Komi	PMd	Proto-Mordvin
Ma	Mari	PMS	Proto-Mansi
	E East	PP	Proto-Permic
	W West	PSa	Proto-Saami
Md	Mordvin	PSam	Proto-Samoyedic
	E Erzya	PU	Proto-Uralic
	M Moksha	PUg	Proto-Ugric
		Sa	Saami
		Kld	Kildin Saami
		L	Lule Saami
		N	North Saami
		S	South Saami
		Slk	Selkup
		TN	Tundra Nenets
		Ud	Udmurt

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