

## Assessing irregular and “sporadic” developments in the prehistory of Hungarian vocalism

SLE 21

Appendix: Etymological material

Sampsa Holopainen, [sampsa.petteri.holopainen@univie.ac.at](mailto:sampsa.petteri.holopainen@univie.ac.at)

### Convincing Uralic/Ugric etymologies manifesting \**u* > Hu *a*

PU \**kulki*- > Hu (der.) *halad* ‘to proceed’, Fi *kulke*- ‘to go, wander’, SaN *golga*- ‘to run, float’, Md E *kol’ge*- ‘triefen, rinnen’, Ko *kɨlal*- ‘stromabwärts treiben’, Kh V *kwɨl*- ‘schreiten’, TN *χǎěś* (< PSam \**kəj*-) (UEW: 197; Sammallahti 1988: 544; Aikio 2013)

PU \**kunji*- > Hu *hó*: *hava*- ‘moon’, Fi *kuu*, Md E *koŋ*, Kh Kaz *χǔw*, Kamas *ki* id. (UEW: 211–212; Sammallahti 1988: 537, PU \**kixi*-; Aikio 2013)

PU \**kuri*- > Hu (der.) *harag* ‘anger’, Kh Vj *korəm*-, Ms *χor*-, MdE *kor* ‘anger’ (UEW: 220–221)

PU \**kurV* ‘crooked’ >? Hu (der.) *harántos*, Ko *kɨrɨʂɨn*, Ud *kɨrɨʂ*, Kh V *kõr* ‘curve in a river’, TN *χara* (UEW: 220)

- Aikio (2013) considers Hungarian *horog* ‘hook’ reflex of PU \**kura* ‘crooked’, assuming Finnic *kura* ‘left’ (> Est *kura*) as cognate in addition to the Permic and Samoyed forms listed above.

PU \**kuttV* > Hu *hát* ‘back’, Kh *kutəɮ* ‘shade’, Ms KU *χūtəj* ‘in the shade’, ? Selkup *qottä* (UEW: 225)

- The etymology is missing from more recent word-lists of Sammallahti (1988) and Aikio (2013) and the scarce attestation in Ob-Ugric and Samoyed raises suspicions, but formally Hu *hát* could reflect PU \**kuttV*.

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

- Hu can point to \**u* or \**o*, the Saami cognate is irregular from \**kuttV*. Similar problems are involved in the reconstruction of many Uralic numerals.

PU \**muča*- ‘illness’ > Hu *hagy-máz* ‘typhoid fever’, Ko *miž*, Ud *miž* ‘illness’, Kh V *məč* ‘Schaden’, Ms *maš* ‘whole’ (UEW: 283, Aikio 2013)

- Hu sibilant *z* is irregular but otherwise the etymology is convincing.

PU \**mura*- > Hu *mar*-, Kh *məri*- ‘to break’, Ms So *mur*- ‘to break’, TN *mardā*- ‘to break through’, Fi *murta*- ‘to break’ (UEW: 288, Sammallahti 1988, Aikio 2013)

PU \**pućirta*- > Hu *facsar*, Fi *puserta*- ‘to squeeze’, Ko *pižjirt*-, Ud *pižjirt*-, Kh V *posər*- (UEW: 397)

PU \**tuni*- > Hu *tan*-, MdE *tonado*-, Ma *tunema*-, Ko *tunal*-, Ud *tunal*- (UEW: 537, Sammallahti 1988: 550, Aikio 2013)

- Aikio reconstructs \**u*; Permic can point to \**o* as well. Hu *a* might be explained through contamination with *tanú* ‘witness’ that is a Turkic loan, cf. Old Turkic *tanug* ‘witness’ (WOT: 848–852).

PU \**tukti* ‘crossbar’ > Hu *tat*, Kh V *töγət*, Ma *təktə*, Ko *tɨk*, TN *tade* (UEW: 534, Sammallahti 1988: 550, Aikio 2013)

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

- Hu *ó* is due to contraction of the diphthong *au* (*a* retained in oblique *tava-*). Most languages (including Permic) point clearly to PU *\*u* rather than *\*o* as is reconstructed by the UEW.

### Good etymologies that do not show *u > a* after *k*:

PU *\*kudi-* > Hu (compound) *hol-nap* ‘tomorrow’, Kh V *kōltəγ* ‘morning’, Ms TJ *kol* id., TN *χū?* ‘in the morning’ (UEW: 193; Sammallahti 1988; Aikio 2013)

PU *\*kuma* ‘face down’ > Hu (der.) *homlok* ‘forehead’, *homorú* ‘crooked’, KhV *komtaγ* ‘face down’, Ms So *χomi* ‘aufs geschicht, um’, Fi (der.) *kumo-*, *kumara*, MdE *koma-* ‘to bow’, Ma *kāmāk*, *kumāk* ‘upside down’, Ko *kjmes*, Ud *kjmes* ‘forehead’ (UEW: 201–202; Sammallahti 1988: 537; Aikio 2013)

PU *\*kumV* ‘cloud’ > Hu (der.) *homály* ‘dark’, Ms So *χomχat-* ‘cloudy’, MdE *kovol* ‘cloud’, Ko *kjmer* (UEW: 204–205; Sammallahti 1988: 544)

PU *\*kumši* > Hu *húsz* ‘twenty’, Kh V *kos*, Ms Tj *kos*, Ko *kjž*, Ud *kjž* id. (UEW: 224–225; Sammallahti 1988: 544; Aikio 2013)

PUg *\*kumti* > Hu *hód* ‘beaver’, Ms TJ *końtəl* id. (UEW: 858–859; WOT: 1061, 1312)

PU *\*kuńa-* > Hu *huny* ‘to close eyes’, Kh V *kōń-*, Ms TJ *koń-*, MdE *końa-*, Ko *kuń-*, Ud *kjń-* id. (UEW: 208–209; Sammallahti 1988: 537; Aikio 2013)

PU *\*kuńci* > Hu *húgy* ‘urine’, Kh V *kōs-*, Ms TJ *końc-* ‘to urinate’, Fi *kusi* ‘urine’, SaN *gožža* id., Ma *kāža-* ‘to urinate’, Ko *kuž’* ‘urine’, Ud *kjž’* id. (UEW: 210; Sammallahti 1988: 537; Aikio 2013)

PU *\*kupla* > Hu (der.) *hólyag*, Kh V *komləγ* ‘Fischblase’, Ms TJ *kəwl-* ‘to swim’, Fi *kupla* ‘bubble’, Ma *kāwəl*, *kuwəl* id. (UEW: 212–213)

PU *\*kuri* > Hu (der.) *horhó*, Kh V *kor*, ‘hole (in a tree)’, Fi *kuru* (UEW: 217–218; Sammallahti 1988: 544; Aikio 2013)

PU *\*kurńa* > Hu (der.) *hornyol* ‘kerben’, Fi *kuurna*, Mari *korno*, *kornā* ‘track’ (UEW: 216)

PUg *\*kupVtV-* > Hu *húz* ‘to pull’, Kh Trj *kōpjət-* ‘to break’, Ms TJ *kat-* ‘to reap’ (UEW: 859)

### Uralic/Ugric etymologies that show *\*aw* or *\*ow* > Hu *a* rather than *\*u* > *\*a*

PU *\*kowja* > Hu *háj* ‘fat’, Fi *kuu*, MdE *kaja*, Ma *kaja*, *koja*, Ud *kej*, *kwaj* (UEW: 194–195; Sammallahti 1988: 544; Aikio 2013; YSuS)

- The reconstruction of *\*ow* (Aikio 2013, YSuS) explains all the reflexes more regularly.

PU *\*kuwli-* or *\*kowli-* > Fi *kuulla*, MdE, M *kul’e-*, Ma *kola-*, Ud, Ko *kjł-*, Kh V *kəl-*, Hu *hall* ‘to hear’; cf. ? *\*kunti-li-* > Hu *hadl* > *hall*, Fi *kuuntele-*, also contamination in the Finnic side possible (UEW: 196–197; Sammallahti 1988: 544; Aikio 2013; YSuS)

- Finnic long *uu* points to an earlier *Vw* sequence that could be reconstructed as *\*ow* (cf. PU *\*kowsi* > Fi *kuusi*), but Permic vocalism rather points to *\*u*. *\*kuwli-* > *hall* fits the rule that *u* becomes regularly Hu *a* after *\*k*.

PU *\*pawi* > Fi *puu*, Ma *pu*, Ko *pu*, Ud *pu* (< PP *\*pũ*), Hu *fa*, TN *pā* (UEW: 410–411; Sammallahti 1988: 539; Aikio 2013; YSuS)

- Only Finnic clearly points to *\*u(w)*, but *\*ow* or *\*aw* would be equally possible. Hungarian and Samoyed point to *\*a*, Mari and Permic ambiguous. YSuS reconstructs *\*pawi*.

PU \**śawi* > Hu *száj* ‘mouth’, Fi *suu*, Ma \**śu*, PP \**śu* id. (UEW; Aikio 2013; YSuS)

- Similar case as \**pawi* above.

PU \**śuwinti* > ? *szád* ‘mouth of a river’, Ms K *sunt*, SaKld *čont* (Aikio 2013)

- A distinct PU stem (not identical to \**śawi* ‘mouth’) according to Aikio (2013) – the *á* vocalism in Hu can have been influenced by *száj*, however. The vocalism of the Saami cognates is unclear (Aikio 2013).

### Problematic reconstructions of the UEW discussed in later research

PU \**kompa* ‘wave’ > Hu *hab* ‘foam’, Kh V *kōmp* ‘wave’, Ms So *χump* id., ? Fi *kumpu* ‘hill’, SaL *kåbbå* ‘a small hill’, MdM *komba* ‘hill’, Ko *gibad* (UEW: 203–204, Sammallahti 1988: 537, Aikio 2013, 2015)

- Uncertain vocalism: many branches point to \**o* rather than *u*. Sammallahti reconstructs \**kompa*. (Aikio 2015, Zhivlov 2014).

PU \**konti* > Hu *had* ‘army’, Kh V *kāntəγ* ‘Khanty’, Ms TJ *kānt* ‘army’ ? Fi *kunta*, ? Est *kond* (UEW: 206–207, 208)

- Probably more than one PU stem, Zhivlov 2014: 140 reconstructs \**konti*- ‘to hunt, murder’ > Hu *had*. The reconstruction \**kunta* in the UEW is based on Finnic evidence, but there are probably several roots here.

PU/PUg \**kad’ma* > Hu *hamu* ‘ashes’, Kh Vj *kajem*, Ms TJ *kōl’əm* id. (Abondolo 1996)

- Abondolo (1996) has argued that \**kad’ma* is a derivative of \**kad’a*- ‘to leave’ (same explanation presented also by Aikio apud Zhivlov 2014). The *a* vocalism presumed by this explanation is more regular than UEW’s (194) idea of \**kud’mV*.

UEW \**puri* > *far*, *farok*, Kh V *pjir* ‘backpart’

- Aikio assumes PU \**ponči* > *far*, *farok*. Few examples for the sound-law \**nč* > *r*, but Aikio correctly argues the vowel-development of the Khanty cognate is in any case irregular from UEW’s PUg \**puri*-

PU \**u*- ~ \**o*- > Hu *az* ‘that’, ? MdE *ombo* ‘another’, Ud *otjn* ‘there’ etc.

- This pronominal stem is usually reconstructed as \**o*-, see recently Janhunen (2020). The vocalism of PU pronominal stems is in general very complicated to reconstruct.

### Irregular and problematic etymologies that have to be rejected

PU \**juptV*- (UEW \**juktV*-) ‘to tell’ > ? Hu *játszik* ‘to play’, Fi *juttu* ‘story’, *juttele*- ‘to tell’, MdE *jofta*- ‘to say’, PSam \**jəptə*-

- The etymology is considered uncertain also by UEW and EWUng because of the semantic differences.

PUg \**kurV*- > *hord*, Ms TJ *kart*-, KU *χart*-, P *kart*-, So *χart*-

- Both Hungarian and Mansi words are obscure derivatives, which makes the whole etymology suspicious. Mansi *a* is not a regular reflex of PU/PUg \**u*, so the vowel-reconstruction is ad hoc.

PUg \**kurV*- > Hu *hervad*, Kh Trj *kōrəγλə*-

- Completely irregular cognates, no real evidence for \**u*.

PU *\*rɯŋkV* > Hu *rág* ‘chew’, Ms L *râgn-*, TN *luŋkībā-* id.

- Irregular and unconvincing etymology: Mansi *g* from *\*ɣk* impossible, TN *l* cannot reflect PU *\*r* (+ phonotactics).

PU *\*śakkV* ~ *\*śukkkV* > Hu *szak* ‘piece’, Kh Vj *sāk*, ? Fi *sukku*

- No real evidence for *u*; the Finnic cognate *sukku* ‘piece’ is poorly attested and a semantically dubious cognate.

PU *\*šurV* ‘to cut’ > ? Hu *irt-* ‘to destroy’, ? *arat* ‘to harvest’, Ko *šer-*, Ud *šjr-*, Kh *Vlört-*, DN *tärt-*, TN *tärt-* (UEW; Sammallahti 1988)

- It is dubious whether the form with *a-* belongs here at all. Hu *irt-* semantically different from the Permian and Khanty words that simply denote ‘schneiden’. Also, the Samoyed forms are semantically dubious.

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 the real, regular cognate here (Aikio 2013). Relationship to *tar*, *tarja* uncertain. The stems *\*turV* and *\*tura* listed in the UEW probably belong together.

PU *\*tuli-* > Hu *talál* ‘to find’, Fi *tule-* ‘to come’, Ma *tola-*, TN *to-* id. (UEW: 535)

- The Hu etymology is considered uncertain by the UEW too, due to semantics. 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 connection with PU *\*tolwa-* or *\*talwa-* ‘to bring’ (> SaN *doalvut*, Nganasan *tojbu-* ‘to take, transport, deliver’, Kamass *tu-* ‘to arrive; to reach’).

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

- The assumed Khanty and Mansi cognates are grouped under a different PU stem, *\*wara* ‘edge’ by Aikio (2012), Zhivlov (2014: 120). Whatever is the etymology of Hu *aránt*, it can hardly belong here, and the reconstruction *\*urV* is based on no compelling evidence. The relationship between *aránt* and *iránt* requires further research.

### Revisited reconstructions

PUg *\*kaja-* > *hajt*, Ms So *χujt-* ‘to tempt’ (UEW: 854)

- Of the alternatives given in the UEW, *\*kaja-* or *\*koja-* is more plausible due to Mansi *\*u*. On the other hand, Hu *a* can be explained here through the position after *\*k-*.

PUg *\*tul-* > *táltos* ‘sorcerer’, Kh Vj *tolt* ‘fever’, Ms N *tūlt(en)* ‘easily’ (UEW: 895; WOT: 841–843)

- No real evidence for *\*u*; the etymology is semantically dubious. Possible Turkic etymology ← T *\*taltutči* ‘the one who exercises loss of consciousness’ < T *\*tal-* ‘to faint’.

### Uncertain etymologies

PUg *\*kud’V-* > Hu (der.) *hagyap-* ‘to spit’, Ms KO *kul’k-*, P *kul’kəs-*, So *χul’χas-* (UEW: 858)

- The word is not a counter-example per se, but suspicious due to scarce attestation in Hungarian.

PUg \**kućV* > -*hoz*, OHu *huzad*, *hazam*, *hozza* etc., Khanty V *kućəŋ*, O *χōśá* etc. (UEW: 857–858)

- Also the Hungarian sibilant is irregular, it is doubtful whether the word a real cognate to Khanty V *kućəŋ*, O *χōśá*.

PU \**kuńća* ? > *húgy* ‘Orion’, Ko *koźul*, Ud *kiź’ili* id., Kamas *kunźá-γej* ‘star’ (UEW: 209–210, Sammallahti 1988: 537; Aikio 2013)

- Uncertain reconstruction, little evidence for PU \**u*, at least Permic contradicts the reconstruction \**kuńća* (Aikio 2013).

PU \**kuńci* > Hu *hangya* ‘ant’, Fi *kusiainen*, Ko *koźul*, Ud *kuź’ili*, Ms TJ *künš* id. (UEW: 209)

- Hu *n* is irregular and the Permic vocalism does not point to \**u*.

PU \**kura-* > Hu (der.) *harmat* ‘dew’, Fi *kuura* ‘hoar frost’, ? SaL, ? Ko *gier*, ? Ud *ger*, Selkup *kurə* (UEW: 214; Sammallahti 1988: 544)

- The suggested Permic and Samoyed cognates are not regular, but the Finnic and Hungarian words can be derived from \**kura*.

PU \**juri-* ‘to spin’ > ? *jár* ‘to go’, Kh Trj *jrəγlə-* ‘to forget’, Ms P *jōrl-* id., Ms , SaN *jorrat* ‘to go around’, Ud *jromi-* ‘to go astray’ (Aikio 2002: 46–48)

- EWUng also mentions PFU \**jorkV-* as a possible pre-form for Hungarian. Although Hu *jár* discussed by Aikio (2006) as a cognate to PU \**juri-*, not mentioned in Aikio’s (2013) word-list. The vowel-reconstruction is not settled, as remarked by Aikio (2006: 48).

PU \**ukti* ‘track’ > Hu *út* ‘road’, Kh *ɔγət* ‘Landenge’, Ms KU *āχt*, TN *ηū?* ‘track’ (UEW: 546, Sammallahti 1988)

- Aikio (2013) notes that the vowel-reconstruction is uncertain.

## Abbreviations

Est = Estonian

Fi = Finnish

Hu = Hungarian

Kh = Khanty

O = North Khanty (Obdorsk)

V = East Khanty (Vakh)

VJ = East Khanty (Vasjugan)

Ma = Mari

Md = Mordvin

E = Erzya

M = Moksha

Ms = Mansi

TJ = South Mansi (Janychkova)

So = North Mansi (Sosva)

ObUg = Ob-Ugric

OHu = Old Hungarian

PSam = Proto-Samoyed

PU = Proto-Uralic

PUg = Proto-Ugric

T = Turkic

TN = Tundra Nenets

## Bibliography

Abondolo, Daniel (1996), *Vowel rotation in Uralic: Obug[r]ocentric evidence*, SSEES Occasional papers no. 31, London: School of Slavonic and East European Studies, University of London.

Aikio, Ante 2002: New and old Samoyed etymologies. – *Finnisch-Ugrische Forschungen* 57: 9–57.

Aikio, Ante 2006: New and old Samoyed etymologies (Part II). – *Finnisch-Ugrische Forschungen* 59: 9–34.

Aikio, Ante 2012: On Finnic long vowels, Samoyed vowel sequences, and Proto-Uralic \*x. – Tiina Hyytiäinen, Lotta Jalava, Janne Saarikivi & Erika Sandman (eds.), *Per Urales ad Orientem. Iter polyphonicum multilingue. Festschrift tillägnad Juha Janhunen på hans sextioårsdag den 12 februari 2012*. Mémoires de la Société Finno-Ougrienne 264; Helsinki: Société Finno-Ougrienne. 227–250.

Aikio, Ante (2013), Uralilaisen kantakielen vokaalistosta. Etymologia ja kielihistoria: Erkki Itkosen ja Aulis J. Joen 100-vuotisjuhlaseminaari 19.4.2013 (handout). Helsinki.

Aikio, Ante (2015), The Finnic ‘secondary e-stems’ and Proto-Uralic vocalism, *Journal de la Société Finno-Ougrienne* 95, 26–66.

Aikio, Ante (2018), Notes on the development of some consonant clusters in Hungarian, Sampsa Holopainen & Janne Saarikivi (toim.), *Peri orthótetos etýmōn. Uusiutuva uralilainen etymologia*. Uralica Helsingiensia 11; Helsinki: Société Finno-Ougrienne. 77–91.

Bárczi, Géza (1958), *Magyar hangtörténet*. Budapest: Tankönyvkiadó.

Bereczki, Gábor (2013), *Etymologisches Wörterbuch des Tscheremissischen (Mari). Der einheimische Wortschatz*. Nach dem Tode des Verfassers herausgegeben von Klára Agyagási und Eberhart Winkler. Veröffentlichungen des Societas Uralo-Altaica 86; Wiesbaden: Harrassowitz Verlag.

E. Abaffy, Erzsébet (2003), Az ősmagyar kor. Hangtörténet [The Proto-Hungarian period. Historical phonology], in Jenő Kiss and Ferenc Puztai (eds.), (2003), *Magyar nyelvtörténet*, Budapest: Osiris Kiadó, 106–128.

EWUng = *Etymologisches Wörterbuch des Ungarischen Sprache*. 1992–1997. Hrsg. von Loránd Benkő. Budapest: Akadémiai Kiadó.

Honti, László (2013), Comments on Uralic historical phonology, *Acta Linguistica Hungarica* 60, 1–68.

Janhunen, Juha 1981: Uralilaisen kantakielen sanastosta. – *Journal de la Société Finno-Ougrienne* 77: 219–274.

- Janhunen, Juha 2020: Issues of comparative Uralic and Altaic studies (6). – Ёмас сымын нёкве вёртуп ётпост самын патум: Scripta miscellanea in honorem Ulla-Maija Forsberg. MSFOu 275: 272–83. Helsinki: Soci  t   Finno-Ougrienne. 129–140.
- Kallio, Petri (2012), The non-initial-syllable vowel reductions from Proto-Uralic to Proto-Finnic, in Tiina Hyyti  inen, Lotta Jalava, Janne Saarikivi and Erika Sandman (eds.), (2012), *Per Urales ad Orientem. Iter polyphonicum multilingue. Festschrift till  gnad Juha Janhunen p   hans sextio  rdsdag den 12 februari 2012*, Helsinki: Soci  t   Finno-Ougrienne, 163–175.
- Kallio, Petri (2018), Ensitavun diftongit kantasuomessa. – Sampsa Holopainen & Janne Saarikivi (toim.), *Peri orthot  tos etym  n. Uusiutuva uralilainen etymologia*. Uralica Helsingiensia 11; Helsinki: Soci  t   Finno-Ougrienne. 251–268.
- Koivulehto, Jorma (1991), *Uralische Evidenz f  r die Laryngaltheorie*, Ver  ffentlichungen der Kommission f  r Linguistik und Kommunikationsforschung, Heft 24; Wien: Verlag der   sterreichischen Akademie der Wissenschaften.
- Koivulehto, Jorma (2000), Etymologie und Lehnwortforschung: ein   berblick um 2000, *FUF* 42–78.
- Korenchy,   va 1972: *Iranische Lehnw  rter in den obugrischen Sprachen*. Budapest: Akad  miai Kiad  .
- Lak  , Gy  rgy (1968), *Proto Finno-Ugric sources of the Hungarian phonetic stock*. Budapest: Akad  miai Kiad  .
- MSzFE = Lak  , Gy  rgy (f  szerk.) 1971–1978: *A magyar sz  k  szlet finnugor elemei*. Budapest: Akad  miai Kiad  .
- Ringe, Don (2004), Reconstructed ancient languages. – Roger D. Woodard (ed.), *The Cambridge Encyclopedia of the World’s Ancient Languages*. Cambridge: Cambridge University Press. 1112–1128.
- Sammallahti, Pekka 1988: Historical phonology of the Uralic languages with special reference to Samoyed, Ugric and Permic. – Denis Sinor (ed.), *The Uralic languages: description, history and foreign influences*. Handbuch der Orientalistik 8: Handbook of Uralic studies 1; Leiden: E. J. Brill. 478–554.
- P. T  los Endre 1984: Vogul + osztjak/ 2. – *Nyelvtudom  nyi K  zlemenyek* 86/1: 89–99.
- UEW = Redei, K  roly (1986–1991), *Uralisches Etymologisches W  rterbuch*, Band I–III, Wiesbaden: Harrassowitz / Budapest: Akad  miai Kiad  .
- WOT = R  na-Tas, Andr  s &   rp  d Berta (with the assistance of L  szl   K  roly) 2011: *West Old Turkic. Turkic loanwords in Hungarian*. Wiesbaden: Harrassowitz.
- YSuS = Petri Kallio 2019: *Yhteissuomalainen sanasto (Common Finnic vocabulary)*, online version <https://sanat.csc.fi/wiki/Etymologiadata:YSuS>
- Zhivlov, Mikhail (2014), Studies in Uralic vocalism III. – *Journal of Language Relationship* 12: 113–148.