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The Uralic-Yukaghir lexical correspondences: genetic inheritance, language contact or chance resemblance?

The Uralic language family has often been hypothesized to be related to Yukaghir, even though no widely accepted evidence for this theory has been presented so far. The study of Uralic-Yukaghir relations has in part been held back by the scarcity of basic documentary and comparative work on the Yukaghir languages. The publication of *A Historical Dictionary of Yukaghir* (2006) by Irina Nikolaeva, however, has raised Yukaghir lexicology and historical phonology to a level that allows systematic comparison of Proto-Yukaghir and (Proto-)Uralic to be easily carried out. This paper discusses the lexical correspondences between Uralic and Yukaghir languages, and examines to what extent they can be explained as evidence of genetic relationship, products of language contact, or mere chance resemblances. It is argued that there is no clear lexical evidence supporting a genetic connection between the two families, and that no regular sound correspondences between the two proto-languages can be established. A majority of the Uralic-Yukaghir lexical comparisons suggested in earlier references seem to be chance resemblances, but a smaller corpus of probable loanwords supporting contacts between (Pre-)Proto-Samoyed and Proto-Yukaghir can be established.

1. Introduction

The Uralic languages are often presented as possibly related to Yukaghir, a family of two closely related and severely endangered languages, Kolyma and Tundra Yukaghir, in Northeastern Siberia. It is curious that even though the Uralic-Yukaghir hypothesis is frequently mentioned in references, the issue has mostly been ignored by specialists in Uralic comparative linguistics. Only few scholars have done detailed work in the field of Uralic-Yukaghir comparison (note especially Collinder 1940; Sauvageot 1969; Harms 1977; Nikolaeva 1988; Piispanen 2013). Besides those who have sought to establish a genetic connection between the two families, Uralic scholars have usually silently ignored the idea. The hypothesis has rarely been criticized in any detail; Angere (1956), Kreynovich (1958), and Rédei (1999) are notable exceptions. Sauvageot (1969) has presented arguments both for and against a genetic relationship, remaining ambivalent on the issue.

While Uralic comparative linguistics is a highly advanced field, the study of possible Uralic-Yukaghir connections has been encumbered by the limited documentation and comparative study of the Yukaghir languages. Recently, the situation has been changing, though, and the possibilities of historical phonological and etymological research have been greatly improved by the publication of *A Historical Dictionary of Yukaghir* (Nikolaeva 2006; henceforth referred to as HDY). There is now also a reference grammar available of Kolyma Yukaghir (Maslova 2003a) as well as a rather extensive grammatical sketch of Tundra Yukaghir (Maslova 2003b).

The purpose of this paper is to examine whether the lexical correspondences proposed between the Uralic and Yukaghir language families provide evidence of genetic relationship. A large number of Uralic-Yukaghir lexical parallels has been proposed by previous research, and these have been varyingly interpreted either as proof of genetic relationship or as loanwords from Uralic to Yukaghir; the latter view is represented by Rédei (1999) and Häkkinen (2012a; 2012b). So far, however, the material has not been sufficiently critically evaluated in light of modern knowledge of Uralic and Yukaghir historical phonology, and hence there is a need to reassess the scope and nature of the entire corpus of proposed Uralic-Yukaghir etymologies.

The lexical material that potentially serves as evidence of genetic relationship between Uralic and Yukaghir is analysed in the following subsections. The analysis is complemented by two appendices: Appendix A

consists of a table listing the Uralic-Yukaghir lexical comparisons presented in HDY, and the sound correspondences involved in the comparisons; Appendix B includes critical commentaries on the individual Uralic-Yukaghir etymologies. While alleged shared features in morphology and on other levels of grammar are not the main topic of this study, the prospects of proving a Uralic-Yukaghir affinity through grammatical correspondences will also be briefly examined, using case morphology as an example.

2. An overview of the material

In order to show that Uralic and Yukaghir are genetically related and share lexical items inherited from a common proto-language, it is necessary to establish a system of regular sound correspondences between Proto-Uralic and Proto-Yukaghir. In this section, the Uralic-Yukaghir lexical comparisons presented in HDY are critically examined in order to find out whether such a system of correspondences can be established.

There are a total of 165 lexical entries in HDY that involve an etymological comparison to Uralic. While the number appears quite large, not all of this material is equally relevant for the purpose of investigating the possible genetic connection between Yukaghir and Uralic.[1] Moreover, it must be noted that Nikolaeva herself refers to the cited forms merely as "potential cognates" (HDY: 9), thus stressing the overall tentative nature of the external comparisons presented in the dictionary.

Of the 165 comparisons, 22 involve only a low-level reconstruction from a single branch within the Uralic family: Ob-Ugric, Khanty, Permic, or Samoyed. Most such cases involve a comparison to a Samoyed word, and it is not clear whether the forms are thought to be potential genetic cognates or whether borrowing is assumed instead. Whichever the case, it is clear that such comparisons cannot serve as good evidence of genetic relationship; due to the great time depth of the Uralic family, there are innumerable lexical items attested in only a single branch, and it would be methodologically highly questionable to project such items back to a Uralic-Yukaghir level of comparison. Trask (2000) calls this kind of procedure "reaching down" for cognates; see also Campbell & Poser (2008: 208, 373) for recent critical discussion.

Of the remaining 143 comparisons, 46 are judged "highly problematic" by Nikolaeva and marked with a question mark (for discussion, see HDY: 9). The problems associated with each etymology are usually not

explained in the dictionary, but in many instances it is obvious that there are phonological, morphological or semantic complications. Some examples can be cited.

A semantic mismatch is obvious, e. g., in the following cases:

YukK *pundu-* 'tell, narrate' ~ PU *puna- 'spin, weave' (HDY 1938)
YukT *qal-dawe* 'tree bark, fish scales' ~ PU *kala 'fish' (HDY 1982)
YukK *qolil* 'sound, noise, tinkling', *qolińī-* 'make noise' ~ PU *kuwli- 'hear' (HDY 2050)

In some cases, there are non-matching segments or parts in the compared forms. In the following examples, PU *-mi- and YukK *-žubə* are perhaps thought to be suffixes; the issue is not explicitly discussed in the entries in HDY, however:

YukK *čolo-*, T *čala-* 'add, join together' ~ PU *ćolmi- 'knot; tie' (HDY 309)
YukK *poŋžubə* 'capercaillie' ~ PU *pünji 'hazelhen' (HDY 1866)

In the following cases, the etymology presupposes that a final *-l* has been reanalysed as a suffix in Yukaghir:

YukK *kē-l* 'slot' (cf. *kē-dəgən* 'through a slot') ~ PU *ko/ulV 'slot' (HDY 768)
YukK *šā-l*, T *sā-l* 'tree, wood, stick' (cf. YukK *šā-n-yār* 'tree bark') ~ PU *śi̯li- 'elm' (HDY 2118). Note also the semantic mismatch between the compared forms.

The compared items may also appear to have a sound-symbolic nature:

YukK *kurčəŋ* 'Siberian white crane' ~ PU *ku/i̯rki 'crane' (HDY 955)
YukK *ńūjaya-* 'walk staggering and moving hands' ~ PU *n/ńVjV- 'stretch, expand' (HDY 1538)

In many instances, though, it is difficult to guess why a particular comparison has been classified as "highly problematic" in HDY. The reason may perhaps be an assumed irregularity of sound correspondences between Uralic and Yukaghir, but as will become clear in the discussion below, also those comparisons that have not been classified as "highly problematic" show sound correspondences that are equally irregular.

Before moving on to deal with Uralic-Yukaghir sound correspondences, however, the validity of the Uralic etymologies themselves must be

examined. Needless to say, if one seeks to establish Uralic and Yukaghir lexemes as cognate, it is necessary for the compared proto-language reconstructions to be solidly established within each family. This is especially crucial in the case of Uralic forms, as the time depth of the family poses many problems for reconstruction. In order to critically evaluate the Uralic reconstructions cited by Nikolaeva, developments in Uralic etymology and historical phonology during recent decades must be briefly summarized.

Prior to the 1980s, the picture of Proto-Uralic phonology was still in many respects unclear, and reconstructions were heavily biased toward the westernmost branches (Saami, Finnic and Mordvin), the historical phonology of which had already been well worked out in the early 20th century; in fact, most of the regular vowel correspondences between Saami, Finnic and Mordvin had already been discovered by Genetz (1896). The Mari and Permic languages had been shown to conform to this framework of reconstruction reasonably well, even though an awkwardly large number of exceptions to sound laws regarding vowels was allowed in these languages (Itkonen 1954). The phonological development of the Siberian branches (Khanty, Mansi, and Samoyed), however, had remained quite unclear, and there were essentially no serious attempts to describe the development of these languages from Proto-Uralic in terms of strict sound laws. The situation changed in the 1980s, though, due to studies by Janhunen (1981) and Sammallahti (1988); these two papers are generally regarded as turning points in the debate on the phonological reconstruction of Proto-Uralic.

The advances in Uralic historical phonology in the 1980s were achieved through a critical re-evaluation of the stock of proposed Uralic etymologies. Janhunen (1981) and Sammallahti (1988) based their studies on Uralic historical phonology on rather strict requirements of phonological regularity, and disregarded a large number of previously proposed etymologies which could not be shown to conform to regular correspondences. Subsequent studies conducted in the phonologically strict framework laid out by Janhunen and Sammallahti have both uncovered many new cognate sets and rehabilitated some of the discarded etymologies through new phonological arguments (e. g., Helimski 1999; Aikio 2002; 2006a; 2013; 2014a; 2014b), but nevertheless, the corpus of Uralic etymologies judged reliable has remained significantly smaller than was assumed prior to the 1980s. Many of the older Uralic etymologies that were discarded by Janhunen (1981) and Sammallahti (1988) are, no doubt, mere chance resemblances

that had not been detected as such within the earlier, inexact frameworks of Uralic historical phonology. On the other hand, it appears evident that a significant number of cases could be explained as loanwords, although studies to confirm this remain yet to be conducted.

Considering the Uralic-Yukaghir comparisons, it is important to note that nearly all of the Uralic reconstructions cited in HDY are taken directly from *Uralisches etymologisches Wörterbuch* (Rédei 1988–1991; henceforth referred to as UEW). This is an unfortunate choice, because UEW does not yet reflect the critical developments that took place in Uralic historical phonology and etymology during the 1980s. This becomes obvious as one compares the following figures which show the number of cognate sets with Uralic, Finno-Ugric or Finno-Permic distributions accepted by UEW on the one hand and by Sammallahti (1988) on the other:

	Uralic	Finno-Ugric	Finno-Permic	total
UEW	284	419	197	900
Sammallahti 1988	124	267	142	533

The difference between UEW's and Sammallahti's approach to Uralic lexical reconstruction is rather dramatic, as the former reference accepts nearly 70% more etymologies than Sammallahti does. Every single etymology that is absent in Sammallahti (1988) need not be incorrect, but still, a great majority of the comparisons that are missing from Sammallahti's list of etymologies turn out to have serious problems. Recently, Ponaryadov (2012) has shown that the etymological material presented in UEW contains pervasive irregularities in vowel correspondences, and concludes that the dictionary contains a large amount of "etymological trash" – i. e., etymologies that actually involve random similarities or borrowings between languages rather than inheritance from Proto-Uralic.

The reader interested in the problems associated with individual Uralic etymologies will find detailed discussion on these in Appendix B. For the sake of evaluating the Uralic-Yukaghir comparisons in HDY, however, it is more illuminating to examine the frequency of various types of problems in the comparanda. Figures enumerating the difficulties posed by the etymologies are given below. A classification of the problems associated with individual etymologies is presented in Appendix A.

Total number of Uralic-Yukaghir comparisons:	165	
Very limited distribution in Uralic (one low-level branch only)	22	(13%)
Classified as "highly problematic" by Nikolaeva	46	(28%)
The Uralic etymology is classified as uncertain in UEW	43	(26%)
The Uralic etymology is problematic, even though included in UEW	60	(36%)
Poor semantic match between Uralic and Yukaghir	18	(11%)
Morphological problems	5	(3%)
Comparisons involving an unproblematic Uralic reconstruction and a good semantic match between Uralic and Yukaghir:	68	(42%)
Comparisons involving an unproblematic Uralic reconstruction and a good semantic match between Uralic and Yukaghir, and not classified as "highly problematic" by Nikolaeva	49	(30%)

Thus, only 42% of the Uralic-Yukaghir comparisons presented in HDY do not involve some kind of serious complication in the Uralic etymology itself or in the semantic correspondence between the two families. This means that the material that can serve as plausible evidence for a genetic relationship has already shrunk to only 68 items – and we would be left with even less, if we also were to exclude all other comparisons that Nikolaeva classifies as problematic for one reason or the other. Such a corpus is small indeed, and in order to serve as proof of a genetic relationship, regular sound correspondences would have to be uncovered from the scarce material.

3. Uralic-Yukaghir sound correspondences

We shall now examine whether regularity of sound correspondences between Uralic and Yukaghir can be shown; let us first consider the initial consonant correspondences shown in Table 1. As the table shows, the material contains a few trivial correspondences which are supported by a reasonable number of parallels. However, there are also obvious problems, in particular unexplained splits where one Uralic phoneme has two or more Yukaghir correspondents, with no obvious conditioning factors accounting for the difference. The correspondences PU *s ~ PYuk *l and PU *s ~ PYuk Ø, both illustrated by only two examples, are a case in point. The nasal correspondences involving PU and PYuk *n- and *ń- are also quite

indeterminate, with four different correspondences attested. In theory, these kinds of instances could result from either mergers in Uralic or splits in Yukaghir, but the examples are too few to verify such hypotheses.

PU	PYuk	examples	PU	PYuk	examples
*p-	*p-	7	*n-	*j-	1
*t-	*t-	8	*ń-	*n-	1
*k-	*k/q-[2]	10	*ń-	*ń-	4–5
*s-	Ø-	2	*l-	*l-	3
*s-	*l-	2	*l-	*ɬ-	3
*ś-	*s-	3	*w-	*w-	5
*ś-	*č-	1	*w-	Ø-	1
*m-	*m-	4	*j-	*j-	1
*n-	*ń-	1			

Table 1: Initial consonant correspondences in the 68 "good" Uralic-Yukaghir etymologies in HDY

It is true that one can support some of the initial consonant correspondences from parallels in word-internal positions. For instance, the correspondence PYuk *l ~ PU *l, attested in three cases in initial position, is found in numerous cases word-internally (HDY 33, 309, 311, 672, 704, 1188, 1401, 1406, 1625, 1772, 2273, 2579, 2603; some of these comparisons pose other obvious problems, though). Overall, however, irregularities are compounded rather than solved when word-internal correspondences are taken into account. In particular, consonants in clusters often show unique correspondences, as in the following examples:

PU *mp ~ PYuk *w — PU *lämpi ~ PYuk *lewej- 'warmth' (HDY 1048)

PU *r ~ PYuk *rq — PU *särä 'fork, branched thing, root, blood vessel' ~ PYuk *larq- 'root' (HDY 1007)

PU *rk ~ PYuk *rć — PU *ku/i̯rki ~ PYuk *kurć- 'crane' (HDY 955)

PU *ŋt ~ PYuk *ŋ — PU *oŋti ~ PYuk *oŋ- 'hole in a tree' (HDY 1653)

PU *wl ~ PYuk Ø — PU *lewli 'spirit, breath' ~ PYuk *ɬū- 'smoke' (HDY 1112)

Another problem is caused by contradictory correspondences of word-internal consonants. The following serve as examples:

1) PU *d ~ PYuk *ď PU *edi 'front, ahead' ~ PYuk *eďi 'first, while' (HDY 442)
PU *d ~ PYuk *δ PU *pidi 'long, high' ~ PYuk *puδe 'on, above' (HDY 1911)

2) PU *m ~ PYuk *m PU *e/ämä ~ PYuk *eme 'mother' (HDY 451)
PU *m ~ PYuk *w PU *imi- ~ PYuk *iw- 'suck' (HDY 611)
PU *m ~ PYuk Ø PU *ama- ~ PYuk *ō- 'scoop' (HDY 1576)

3) PU *kt ~ PYuk *q PU *läkti- 'leave, go' ~ PYuk *ďaqa- 'reach, come' (HDY 1004)
PU *kt ~ PYuk *ɣ PU *pukta- 'run' ~ PYuk *pöɣ- 'run' (HDY 1830)

4) PU *kś ~ PYuk *q PU *lakśi- 'carve' ~ PYuk *ďaqa- 'slot in a beam' (HDY 1005)
PU *kś ~ PYuk *qs PU *ńukśi 'marten' ~ PYuk *noqsə 'sable' (HDY 1515)

Thus, the consonant correspondences in the Uralic-Yukaghir word comparisons are highly diverse, even though some potentially regular correspondences also occur. Looking at the vowel correspondences, however, simply eradicates any signs of regularity. Even if we ignore Yukaghir vowel quantity because it is believed to be secondary (HDY: 64), no patterns can be detected. As shown in Table 2, the vowel correspondences are completely chaotic.

Four correspondences occur more than three times: PYuk *e ~ PU *e, PYuk *e ~ PU *ä, PYuk *e ~ PU *o, PYuk *o ~ PU *a. However, even these most promising correspondences cannot be securely established, because the etymologies they are based on display other inexplicable irregularities. Let us consider the six comparisons showing the correspondence PYuk *e ~ PU *e as an example:

PU *edi 'front, ahead' ~ PYuk *eďi 'first; while' (HDY 442)
PU *e- ~ PYuk *en- 'this' (HDY 458)
PU *neljä ~ PYuk *jelek- 'four' (HDY 672)
PU *sewi- ~ PYuk *leɣ- 'eat' (HDY 1019)
PU *tenä 'price' ~ PYuk *tent- 'wealth' (HDY 2401)
PU *weni- 'stretch' ~ PYuk *wentə- 'lay out, stretch out' (HDY 2607)

All of these equations turn out to have serious problems. As noted above, etymology 442 shows the unique correspondence PU *d ~ PYuk *ď, and contradicts another unique correspondence, PU *d ~ PYuk *δ, attested in PU *pidi 'long, high' ~ PYuk *puδe 'on, above' (HDY 1911). Example 458 involves a mere one-segment match; according to HDY, the nasal in PYuk

PYuk	PU	examples
*a	*a	3–4
	*ä	3
	*o	0–2
	*u	1–3
	*i̯	1
*o	*a	4–5
	*o	3–5
	*u	0–1
	*ä	1
	*i̯	2
*u	*ä	1
	*i	1
	*o	3
	*u	1–2
	*ü	0–1
	*i̯	0–1
*i̯	*a	1
	*i	1
	*o	1

PYuk	PU	examples
*ə	*i	0–2
	*u	0–2
*e	*ä	4–5
	*e	6–8
	*i	1–2
	*o	5
	*u	1–2
*i	*a	2
	*ä	0–3
	*e	0–3
	*i	1–2
	*ü	0–1
*ö	*o	1
	*u	1
	*i̯	0–2

Table 2: Vowel correspondences in the 68 "good" Uralic-Yukaghir etymologies in HDY

*en- is "probably a pronominal suffix". Comparison 672 shows the unique correspondence PU *n- ~ PYuk *j-, and the *k in the Yukaghir form is matched with nothing in Uralic; moreover, it would be quite surprising to find a Uralic-Yukaghir cognate numeral for 'four', as none of the other numerals in the two families show any chance of being cognate.[3] Etymology 1019 displays the correspondence PU *s ~ PYuk *l, which has only one parallel in the material (PU *särä ~ PYuk *larq-; HDY 1007), but as noted above, this parallel shows the unique and unexplained consonant cluster correspondence PU *r ~ PYuk *rq. Etymology 2401 involves an unaccounted element *-t- in PYuk *tent-, and the semantic correspondence ('wealth' ~ 'price') is not very satisfying either. This leaves etymology 2607 as the only plausible example of the correspondence PU *e ~ PYuk

*e. If PYuk *-tə- in *wentə- is a derivational suffix, these words have the possibility of a true etymological connection, but even so, a single hypothetical etymology provides us with no evidence whatsoever for the regularity of the vowel correspondence PU *e ~ PYuk *e.

At this point it is hardly necessary to further elaborate on the phonological problems with the Uralic-Yukaghir word comparisons in HDY; the reader interested in exploring the issue further can easily do so with help of the material provided in Appendix A. It has already become clear that even the reduced corpus containing the 68 "best" Uralic-Yukaghir etymologies merely consists of lexical lookalikes, and that no regular sound correspondences can be detected in the material.

We must, however, also assess the recent study by Piispanen (2013), who supports the Uralic-Yukaghir theory and claims that regular sound correspondences in basic vocabulary occur between the two families. According to him, "the Yukaghir vocabulary with Uralic correspondences consists of Palaeolithic vocabulary not bound to any specific cultural or semantic field. For the most part such found correspondences are phonologically systematically regular" (2013: 171). The specific aim of Piispanen's paper is to demonstrate regular Yukaghir correspondents for Uralic geminate stops and the vowel *ü.

Unfortunately, though, Piispanen's study is flawed in regard to both data and method. First, the etymological material he presents – which includes both previously proposed and novel comparisons – contains a large number of doubtful Uralic cognate sets. His material includes 31 Uralic-Yukaghir etymologies, but in a clear majority of cases the cited Uralic reconstruction cannot be considered to represent a valid cognate set; hence, the data used to support the conclusions of the study is in itself in large part invalid. Discussion on many of the individual etymologies cited by Piispanen can be found in Appendix B.

Second, the etymologies presented by Piispanen display a complete inconsistency of sound correspondences, regarding both geminate stops, which are the object of his study, and any other sounds occurring in the forms compared. The following serve as examples:

PU *-pp- ~ PYuk *-p-	PU *ćappa- 'chop, beat with popping sound' ~ PYuk *sapa- 'strike, hit'
PU *-pp- ~ PYuk *-w-	PU *lappe 'flat' ~ PYuk *lewē 'land, earth'
PU *-pp- ~ PYuk *-rp-	PU *ko/uppV ~ PYuk *körp- 'lung'

PU *-pp- ~ PYuk *-mp-	PU *leppV ~ PYuk *limpə ‘soft’
PU *-pp- ~ PYuk *-ɣ-	PU *śoppV-sV ~ PYuk *söɣ- ‘sack’
PU *-pp- ~ PYuk *-q-	PU *ćuppV ~ PYuk *čoqo- ‘pot made of birch’
PU *-pp- ~ PYuk *-j-	PU *lä/eppV ~ PYuk *ľājə ‘spleen’
PU *-kk- ~ PYuk *-q-	PU *jakka- ‘reach, go’ ~ PYuk *ľaqa- ‘reach, come, arrive’
PU *-kk- ~ PYuk *-ɣ-	PU *ćukkV(-lV) ~ PYuk *juɣ- ‘kiss’
PU *-kk- ~ PYuk *-j-	PU *ćukkV ~ PYuk *čōjə ‘hill’
PU *-kk- ~ PYuk *-rq-	PU *ću/okkV ‘curve, bend’ ~ PYuk *čarqə- ‘bent’
PU *ć- ~ PYuk *s-	PU *ćappa- ‘chop, beat with popping sound’ ~ PYuk *sapa- ‘strike, hit’
PU *ć- ~ PYuk *č-	PU *ćuppV ‘wedge, tip, point’ ~ PYuk *čupo- ‘sharp’
PU *ć- ~ PYuk *j-	PU *ćukkV(-lV) ~ PYuk *juɣ- ‘kiss’

In light of this data, it is actually rather odd to state that the paper “presents and discusses regular sound correspondences between Uralic geminate items and Yukaghiric” (Piispanen 2013: 165). The examples show that in reality, Piispanen (2013) does not operate with regular correspondences as required by the comparative method. Instead, we are presented with a collection of vague lexical lookalikes, accompanied by *ad hoc* and contradictory assertions of sound changes that could be postulated to account for the random similarities between them. When such a flawed methodological approach is applied to a corpus of Uralic etymological material that is already in itself largely invalid, the result is an etymological ghost hunt. Needless to say, none of Piispanen’s claims regarding Uralic-Yukaghir sound correspondences can be accepted.

4. A search for new Uralic-Yukaghir lexical matches

As the entire corpus of proposed Uralic-Yukaghir etyma has turned out to show very fundamental phonological irregularities, it seems highly probable that at least a major part of even the 68 “best” Uralic-Yukaghir word comparisons in HDY are nothing more than mere chance resemblances lacking any actual etymological connection. But we cannot entirely ignore the possibility that some of the words in the list could be true cognates after all. The similarity of some semantically very basic lexical items is especially intriguing:

PU *i̯la-, PYuk *āl- 'place under or below' (spatial noun root) (HDY 33)
PU *sula-, PYuk *aĺ- 'melt, thaw' (HDY 35)
PU *aŋi, PYuk *aŋa 'mouth' (HDY 74)
PU *e/ämä, PYuk *eme 'mother' (HDY 451)
PU *koji 'man, male', PYuk *köj 'fellow, boy, young man' (HDY 855)
PU *mälki, PYuk *mel- 'breast' (HDY 1188)
PU *nimi, PYuk *ń/nim (> *ńū) 'name' (HDY 1532)
PU *ńali-, PYuk *ńel- 'lick' (HDY 1401)
PU *pi̯ni-, PYuk *pö/eń- 'put' (HDY 1861)
PU *pidi 'long, high' ~ PYuk *puδe 'on, above' (HDY 1911)
PU *kiwi, PYuk *qij 'stone' (HDY 2101)
PU *wixi- 'lead', PYuk *weɣ- 'lead, carry' (HDY 2499)
PU *wanča(w), PYuk *wonč- 'root' (HDY 2618)

Such resemblances are tantalizing, as they may strike one as being just too good to be all due to chance. However, subjective impressions can prove us nothing, and the relevant question is whether it is possible to uncover any regular Uralic-Yukaghir sound correspondences from the scarce material which is further obscured by numerous coincidental resemblances. To further test the hypothesis of genetic relationship, I made an attempt to combine a more critical approach to the material by conducting a search for new potential cognates with the help of HDY. This search revealed a handful of new word comparisons which could offer support for some assumed consonant correspondences between Uralic and Yukaghir. The most promising comparisons discovered will be briefly discussed here.

The correspondence PU *nś ~ PYuk *nč́ is suggested by PU *punśV 'kneecap' ~ PYuk *pe/i(j)nč́ə- (> YukK *pēďə*, *pejďə* 'shoulder blade; knot', YukT *pīďe* 'front legs of an animal') (HDY 1785).[4] A search for other Yukaghir words with the same cluster turned up two more potential matches: PU *kVnśä- (*känśä- ?) 'cold' (Aikio 2002: 21) ~ PYuk *qanč́- 'cold' (HDY 2000), and PU *lonśa 'calm, soft, mild' (UEW: 250–251; Sammallahti 1988: 545) ~ PYuk *lanč́in- 'slow, calm' (HDY 997). Both of these Yukaghir words are compared to other Uralic items in HDY, but the Uralic cognate sets must themselves be rejected due to reconstructional problems (see the discussion in Appendix B).

The correspondences PU *s ~ PYuk *l and PU *s ~ PYuk Ø are each attested in two examples in HDY. The first of these correspondences is dubious, as one of the two examples is PU *särä 'fork, branched thing,

root, vein' ~ PYuk *larq- 'root' (HDY 1007), which shows the unique correspondence PU Ø ~ PYuk *q already discussed above. Also, my search failed to turn up any further examples of the correspondence PU *s ~ PYuk *l, so PU *sewi- ~ PYuk *leɣ- 'eat' is left as the only potential instance. However, I was able to find three more possible examples of the correspondence PU *s ~ PYuk Ø, including an alternative match for the Uralic root *särä, which has been previously compared to PYuk *larq- 'root':

PU *nusi- 'scrape, scratch' (UEW: 309; Sammallahti 1988: 538)[5] ~ PYuk *nō- 'scrape, scratch' (HDY 1471)

PU *särä 'fork, branched thing, root, vein' (UEW: 437; Sammallahti 1988: 548)[6] ~ PYuk *ere 'fork' (HDY 491)

PU *soŋi- 'enter, penetrate' (UEW: 446; Sammallahti 1988: 548) ~ PYuk *oŋ- 'put on' (HDY 1651)

On the whole, however, my search for new potential Uralic-Yukaghir cognates yielded only modest results. In addition to the cases above, there are two strikingly similar verb roots: PU *kälä- 'wade; rise' ~ PYuk *kile- 'wade' and PU *kani- 'go away' ~ PYuk *qon- 'go'.[7] Beyond this, I was able to uncover only vague resemblances.

While the uncovered similarities may be attractive, the problem is that only very few such instances can apparently be found. They do not significantly increase the size of the corpus of potential Uralic-Yukaghir cognates, and thus they do not help much in demonstrating the overall regularity of sound correspondences. While there may be limited evidence for the "regularity" of some individual correspondences (such as PU *s ~ PYuk Ø and PU *nś ~ PYuk *nć), it seems to be quite impossible to present a set of plausible etymological comparisons where all – or even most – of the sounds in each word could be shown to display regular correspondence between the two families. Hence, the evidence remains entirely inconclusive: there is a handful of suggestive resemblances in basic vocabulary, but they do not suffice to prove a genetic relationship.

It is further worth noting that several of the apparent similarities in basic vocabulary are not limited to Uralic and Yukaghir, but similar word stems are also attested in other language families, in Indo-European in particular. The following potential correspondence sets are especially noteworthy:

PYuk *keľ- 'brother-in-law' ~ PU *käliw 'brother- or sister-in-law' ~ PIE *ǵlh$_2$ōus (Latin *glōs*, Greek γαλόως, Old Church Slavonic *zъlъva* 'husband's sister')

PYuk *weɣ- 'lead, carry' ~ PU *wixi- 'lead' ~ PIE *weǵ^h- 'transport, lead' (Sanskrit *váhati* 'drives, pulls a chariot', Latin *vehō* 'I carry, convey; I ride')

PYuk *ńū (< *ń/nim) ~ PU *nimi ~ PIE *Hnoh$_3$men- 'name' (Sanskrit *nā́man*, Greek ὄνομα, Latin *nōmen* 'name')

PYuk *kile- 'wade' ~ PU *kälä- 'wade; rise' ~ PIE *kelh$_2$- 'rise' (Lithuanian *kélti* 'lift', *kìlti* 'stand up')

Needless to say, such similarities cannot be dealt with in an exclusively Uralic-Yukaghir framework. If we were to interpret resemblances such as the above as evidence of a Uralic-Yukaghir affinity, the demand of consistency would force us also to postulate that both Uralic and Yukaghir are also related to Indo-European.[8] There are, however, multiple possible explanations for such similarities, including chance. It has been argued, for instance, that some or all of the above Uralic words can be explained as early loans from Indo-European (e. g., Koivulehto 1994). If we accept this conclusion, then there is hardly any alternative to explaining the Yukaghir words as borrowings from Uralic, because even if we assumed Uralic and Yukaghir to be distantly related, it would not make sense to assume that Indo-European loanwords had already been adopted into the common proto-language of Uralic and Yukaghir.

5. Uralic-Yukaghir pronoun correspondences

There are also resemblances between Uralic and Yukaghir pronoun roots. These similarities encompass the first and second person pronouns, two demonstrative pronoun roots and two interrogative pronoun roots (cf. Rédei 1999: 16):

PYuk *mət ~ PU *mun / *minä 'I'

PYuk *tət ~ PU *tun / *tinä 'you (sg.)'[9]

PYuk *mit ~ PU *me 'we'

PYuk *tit ~ PU *te 'you (pl.)'

PYuk *ti- ~ PU *tä-, proximal demonstrative

PYuk *ta- ~ PU ?*to/u- (reconstruction problematic), distal demonstrative

PYuk *kin ~ PU *ke 'who'

PYuk *qa/o- ~ PU *ko/u-, interrogative pronoun root

There are, however, several reasons not to draw far-reaching conclusions from these pronouns. First, one must note that the similarities are largely limited to the initial consonants *m-, *t- and *k-, which, as typologically unmarked sounds, are common in grammatical morphemes; beyond this, there is only the vague match in the frontness or backness of the following vowel, and not even that in the case of the 1SG and 2SG pronouns. Such pronoun resemblances are not limited to Uralic and Yukaghir, as similar patterns can be found in many language families of northern Eurasia. While some scholars argue that these should be viewed as evidence of "Nostratic" (Dolgopolsky 1984), "Eurasiatic" (Greenberg 2000; 2002) or some other similar deep linguistic affinity (cf. also Janhunen 2008: 236), many others have not found such pronoun-based evidence compelling.

It is obvious that similarities of this kind can also arise due to chance, and they also occur between languages that cannot possibly have any historical connection: e. g., *m- for first person and *t- for second person is also found in some languages of Africa, New Guinea and the Americas (Nichols & Peterson 2008). Moreover, such similarities do not need to imply genetic inheritance even if they have not developed by chance: Nichols (2012) proposes that the prevalence of certain initial consonants in pronouns over widespread geographic areas, such as the Eurasian *m* : *T* pattern in personal pronouns, results from them being 'attractor states' – i. e., forms which historically arise more easily than are lost, and expand more probably than retract. So, it is far from clear that Uralic-Yukaghir pronoun resemblances result from genetic relationship, and even if we were to pursue a genetic explanation here, the pronoun roots would still not offer evidence for any specific relationship between Uralic and Yukaghir, either as a language family in itself or as a branch in some even more extensive and completely hypothetical genetic grouping. For more detailed criticism of the use of pronoun resemblances in long-range comparisons, see the discussion by Campbell & Poser (2008: 212–222).

Finally, it should be mentioned that in addition to pronouns there is one other grammatical word root which shows an intriguing similarity between Uralic and Yukaghir, namely PU *le- 'become; be' ~ PYuk *ľə- 'be'. The palatalized lateral in the latter form could be attributed to the influence of a historical front vowel (*ľə- ? < *le-). While this might at first sight seem to be a promising match, it is worth keeping in mind that the forms compared are short and the matching consonant *l is an unmarked

and a typologically extremely common sound. However, there is an even more serious problem in the comparison. The Uralic data make it fairly obvious that the grammatical function of the verb is not original, but instead the verb once had the meaning 'be born', 'give birth', or the like. This can still be seen in the polysemy of MariW *liä-*, E *lija-* 'be, become; give birth (of animals), calve, lamb, foal', and further confirmed by a previously unnoticed Samoyed cognate, Ngan *ďîə-* 'give birth (of animals)' (< PSam *jiə-), which lacks the grammaticalization altogether. Yet a further trace of the meaning 'give birth' is found in MdE *ľevks*, MdM *ľefks* 'young (of animals)', an obscured derivative consisting of the otherwise unattested root verb *ľe-* and the suffix *-vks*, *-fks* (< PU *-wiksi), which forms deverbal nouns signifying an outcome or result.

Thus, the semantic and functional development of PU *le- 'become; be' has been similar to SaaN *šadda-* 'become; grow', which is a loan from Finnish *synty-* 'be born'. Hence, an assumption of Uralic-Yukaghir cognation would require us to postulate that a grammaticalization 'be born' > 'become' (> 'be') either already occurred in Proto-Uralic-Yukaghir, or that it took place independently in the two families; all this, of course, remains mere speculation. Moreover, the etymology of the Uralic verb presented here introduces an additional phonological complication: both MariW *liä-* as well as Ngan *ďîə-* suggest that the root originally had some kind of more complex, disyllabic structure – perhaps PU *lewV-, *lejV- or *lexi-. Disyllabic structure is also implied by the well-known constraints of Proto-Uralic root structure, which required content lexemes to have at least disyllabic roots, whereas monosyllabic roots were confined to grammatical items (see, e. g., Janhunen 1982: 27–28). These restrictions on root structure are still preserved unchanged in Saami, and are clearly traceable also in Finnic and Mordvin, where monosyllabic content lexemes can be shown to have developed through the loss of an intervocalic consonant.[10] Thus, the monosyllabic root of SaaN *lea-* 'be' must be interpreted as a result of irregular phonological attrition, which is connected with the transfer of this verb from the lexicon into the sphere of grammar. Given this, it is hard to avoid the conclusion that the superficial similarity between SaaN *lea-* 'be' and PYuk *Ľə- 'be' is nothing more than an etymological mirage.

6. An excursus to grammatical comparison: the case system

The Uralic-Yukaghir affinity has also been supported by morphological comparisons. A thorough discussion on the grammatical arguments is beyond the scope of this paper, but it is worthwhile to take a brief look at some morphological comparanda in order to give an idea of the nature and quality of the evidence. To begin with, let us consider the following claims made by Collinder:

> The features common to Yukaghir and Uralic are so numerous and so characteristic that they must be remainders of a primordial unity. The case system of Yukaghir is almost identical with that of Northern Samoyed. The imperative of the verbs is formed with the same suffixes as in Southern Samoyed and the most conservative of the Fenno-Ugric languages. [...] There are striking common traits in verb derivation. Most of the pronominal stems are more or less identical. (Collinder 1965: 30)

These overblown statements offer a partial explanation as to why the Uralic-Yukaghir theory has been so easily swallowed up by long-range comparative linguists working on multilateral comparisons. Collinder's work is, after all, the one most widely cited in connection with the issue. The passage above is also quoted by Ruhlen (1987: 69–70), who quite uncritically concludes that evidence of this kind "demonstrates beyond doubt the affinity of Yukaghir with the Uralic family". To put things in proper perspective, however, we can consider the argument based on the Samoyed and Yukaghir case systems. The sets of reconstructed case endings for Proto-Samoyed (Janhunen 1998: 469) and Proto-Yukaghir (cf. Nikolaeva 2000: 98–100; HDY: 79–83) are given in table 3.

The reconstructed paradigms immediately reveal Collinder's claim of the "almost identical" nature of Yukaghir and (North) Samoyed case systems to be grossly exaggerated. In fact, there are only two notable resemblances: the genitive suffixes (PYuk *-nt, PSam *-n) and the presence of a coaffix *-kə- in most local case forms.

Let us first consider the genitive case. In modern Yukaghir languages the suffix shows morphophonological alternation between *-n* (before consonants) and *-d* (before vowels), which shows that the suffix goes back to PYuk *-nt, as reconstructed by Nikolaeva. This already invalidates the comparison to the PU genitive suffix *-n as long as the correspondence PYuk *t ~ PU *Ø is not accounted for. Nikolaeva (2000: 98) suggests that

Proto-Yukaghir		**Proto-Samoyed**	
nominative	-Ø	nominative	-Ø
predicative	*-k, *-ləк, *-ləŋ	accusative	*-m
accusative	*-lə, *-ɣələ	genitive	*-n
genitive	*-nt	dative	*-kə-, *-ntə(-ŋ)
dative / allative	*-ŋiń	locative	*-kə-na
locative	*-ŋ-kə	ablative	*-kə-t(ə)
ablative	*-ŋ-kə-t	prosecutive	*-məna
prolative	*-ŋ-kə-n		
instrumental	*-lə[11]		
comitative	*-ńəŋ		

Table 3: Proto-Yukaghir and Proto-Samoyed case endings[12]

the PYuk genitive could correspond to a complex Uralic form *-n-sa where *-n is the genitive ending followed by the 3SG possessive suffix *-sa. This is, however, an *ad hoc* assumption: Nikolaeva herself admits that no known parallels exist for the correspondence PU *ns ~ PYuk *nt, and in lexical comparisons PU *s corresponds instead to PYuk *l or Ø.

This leaves us with the coaffix *-kə- in the local cases. It is a severe problem that this resemblance encompasses only Yukaghir and Samoyed, but not Uralic as a whole. The coaffix *-kə- in Samoyed local cases is quite evidently an innovation, as no trace of a similar element is found elsewhere in Uralic, and even in Samoyed certain archaic elements such as relational noun roots take endings of the type *-na (locative), *-t(ə) (ablative) and *-ŋ (dative) without the coaffix *-kə- (Janhunen 1998: 469). This being the case, the presence of a similar coaffix in Yukaghir local cases provides no evidence of a Uralic-Yukaghir genetic relationship. If the similarity between the Samoyed and Yukaghir coaffixes is not due to chance (which it of course may be), language contact is the only conceivable historical explanation.

Importantly, the similarities between the Samoyed and Yukaghir local cases are in practice limited to the coaffix *-kə-, as the other morphological

elements in the suffix complexes mostly do not match each other. In Yukaghir, *-kə- is preceded by the nasal *-ŋ-, which is the assimilated reflex of the genitive suffix *-nt (Nikolaeva 2000: 99), but this is not the case in Samoyed. As for the suffixes following *-kə-, only the ablative forms are comparable, and here we have a one-segment match involving a high-frequency consonant (*t). While the similarity of the ablative endings PYuk *-ŋ-kə-t and PSam *-kə-t(ə) might look intriguing when viewed in isolation, it turns out to be a spurious match when the case systems and their histories as a whole are taken into consideration.

Other, less transparent connections between the Uralic and Yukaghir case systems have also been proposed, but these can hardly be considered plausible; Rédei (1999: 10–14) provides a detailed critique regarding these suggestions. I will not go into the details of other grammatical categories here; suffice it to say that comparisons in spheres of grammar outside the case paradigms are even less convincing. For instance, claims of verbal morphology shared by Uralic and Yukaghir have also been examined by Rédei (1999: 14–15), who comes to the conclusion that "the Uralic conjugation and the Yukaghir conjugation represent systems so strongly deviating from each other that they cannot genetically have anything to do together" (translated from German). In general, Uralic-Yukaghir morphological comparisons appear to involve vague resemblances between isolated suffixes only; there seem to be no traces of shared, unique grammatical patterns and inflectional paradigms. Moreover, even the isolated similarities between individual suffixes often turn out to be superficial under a critical scrutiny. Thus, it can be said that morphological comparison has so far failed to yield clear evidence for Uralic-Yukaghir; some entirely new arguments and evidence would be needed in this field, too, if Uralic-Yukaghir is to be established as a language family.

7. Previous studies on Uralic loanwords in Yukaghir

The analysis presented above has revealed that lexical comparison of Uralic and Yukaghir does not support the assumption of a genetic affinity between the two families, and that no clear evidence of genetic relationship is found in the domain of morphology either. Even so, there is yet a further criterion for lexical cognation that has not even been touched upon above: in order to serve as evidence of genetic relationship, lexical parallels should be shown not to be loanwords – or at the very least, it must be shown that

cognation provides a more probable explanation for such parallels than borrowing. We shall now turn to investigate to what extent borrowing can account for similarities of word roots between Uralic and Yukaghir. This line of study has been pursued by Rédei (1999) and Häkkinen (2012a; 2012b). I shall first discuss Rédei's contribution, and then turn to Häkkinen's more recent treatment, which is based on a reanalysis of Rédei's research material.

Rédei (1999) rejects the idea of a Uralic-Yukaghir genetic relationship and argues that the purported common Uralic-Yukaghir etymological corpus largely consists of loanwords from Uralic to Yukaghir. It must be noted that before Rédei's paper the question of loanwords had not been properly addressed in Uralic-Yukaghir comparisons. It is true, Kreynovich (1958) maintained that the lexical similarities stemmed from borrowing from Samoyed languages into Yukaghir rather than from genetic inheritance, but he did not provide detailed arguments for this view.

Rédei (1999) lists a total of 121 words which he considers loans from Uralic to Yukaghir; some of the loans are considered uncertain, however. The majority of these words he considers loans from Samoyed to Yukaghir, whereas a minority of words – those not attested in Samoyed, but in Finno-Ugric exclusively – would have been borrowed from Ob-Ugric languages, primarily from Khanty.

There are major problems with Rédei's study in terms of both data and methods. First, the Uralic etymologies and reconstructions cited as the loan originals of various Yukaghir words often contain errors. It is, of course, natural that Rédei chooses to rely on his own etymological dictionary, *Uralisches etymologisches Wörterbuch*, in this regard. However, as noted above, this etymological dictionary contains many outdated and phonologically unacceptable word comparisons which have been later abandoned in more critical studies on Uralic historical phonology. More detailed discussion on the problems with individual etymologies is presented in Appendix B.

Rédei (1999: 25–28) also presents an extensive list of sound substitution rules supposedly exhibited by Uralic loanwords in Yukaghir. Several of the proposed substitution rules fail to make any sense phonetically, and occasionally the rules also contradict each other. The following among Rédei's loan etymologies serve as examples of such unjustified rules; Proto-Yukaghir reconstructions from HDY have been substituted for Rédei's inaccurate reconstructions:

PU *-m- > PYuk *-mp-: PU *kuma- 'fall over, turn upside down' > PYuk *qompə (> YukK *qobo* 'down (on the ground, on the floor)')
PU *-m- > PYuk *-w-: PU *imi- 'suck' > PYuk *iw- 'suck' (> YukK *ib*-, T *iwi*-)
PU *-m- > PYuk Ø: PU *kumV 'snow' > PYuk *kū 'snow' (> Omok *ku*)

PU *-ŋ- > PYuk *-nk- (N. B. *nk ≠ *ŋk!): PU *päŋi 'head; end' ? > PYuk *punkə (> YukK *punkə* 'hill', T *punke* 'hummock')
PU *-ŋ- > PYuk *-ɣ-: PU *soŋi- 'enter, penetrate' ? > PYuk *söɣ- / *seɣ- 'enter; fit in' (> YukK *šög*-, T *seg*-, *sew*-)

PU *-sk- (> PSam *-t-) > PYuk *-j-: PU *poski (> PSam *påtə-) 'cheek' > PYuk *pējə (> YukK *pējə* 'cheek')

PU *-t- / PSam *-r- > PYuk *-nt-: Ugric *pati- 'freeze' or PSam *pərå- 'burn' > PYuk *pentə- 'burn' (> YukK *pēdə*-)

PSam *-mt- > PYuk *-m(un): PSam *amtə 'antler' > PYuk *amun 'bone' (> YukK, T *amun*)

Many of Rédei's comparisons appear plausible at a superficial level, but in closer examination turn out to be illusory due to errors of reconstruction on the Uralic or the Yukaghir side. Consider the following examples:

- Rédei (1999: 36) cites PU *jama- 'be sick, die' as the source of PYuk *jama- 'be sick, die', which would appear to be both phonologically and semantically a perfect match. However, the correct PYuk reconstruction of the root in question is *jompə- (HDY 707), in addition to which the reconstruction of the PU verb *jama- must be rejected due to multiple phonological irregularities in the proposed cognates. The vowel correspondence between SaaN *jápmi*- 'die', MdE *joma*- 'get lost' and MariW *jama*- 'get lost' is irregular, and hence the verbs are not demonstrably cognate. The Saami verb is in reality cognate with MariW *jӕme*- 'go numb (of body parts)' (Aikio 2014b: 81–82). The Md and Mari items are probably connected by borrowing, although the direction is unclear. The Samoyed items cited in this connection, NenT *jaʔmə*-, Enets *jeʔoa*- 'not be able to', old Ngan *jamajua*- (< *jaʔmə-), certainly cannot have any connection with the aforementioned verbs due to their consonant cluster *-ʔm- (where *ʔ may reflect PSam *t, *č, *s or *k).

- Rédei (1999: 39) considers Yuk *kin-*, *kiŋ-* in YukK *kińže*, Old Yuk *kiŋze*, *kinize* 'moon, month' a borrowing from PU *kuŋi 'moon'. However, the correct reconstruction of the Yukaghir word for 'moon, month' is PYuk *kiniŋčə (HDY 830), in addition to which the nasal *-ŋ- in the Uralic form is highly uncertain: only dialectal MdE *koŋ* 'moon, month' points to it, whereas Ugric and Samoyed do not show the expected reflex of a nasal (cf. KhE *kŏɣʷ*, S *χăw*, N *χŭw*, Hung *hó* 'month', Ngan *kičəδə*, Kam *kij* 'moon, month'). Fi *kuu* 'moon, month' is ambiguous, as it can reflect multiple possible proto-forms (*kuxi, *kuwi, *kuŋi, etc.). Hence, the similarity between the Uralic and Yukaghir words is limited to the initial stop *k-, and such a correspondence is as meaningless as that between the initial *m-* in English *moon*, Shoshone (Uto-Aztecan) *mea* and Hawaiian (Polynesian) *mahina* 'moon'.

Some of Rédei's loan etymologies involve an arbitrary segmentation of the Yukaghir form, so that only a part of the word root is matched with a Uralic reconstruction, as in the following examples (note that despite the problem of segmentation all of these examples are considered possible Uralic-Yukaghir matches in HDY as well):

PU *ku/jŗki 'crane' > PYuk *kur- in *kurčə- 'crane' (Rédei 1999: 37; cf. HDY 955)
PU *särä 'root, vein, fork' > PYuk *lar- in *larq- 'root' (Rédei 1999: 48; cf. HDY 1007)
PU *meni- 'go' > PYuk *men- in *menmə- 'jump' (Rédei 1999: 40; cf. HDY 1208)

Furthermore, Rédei's arguments concerning the age and stratification of the Uralic loanwords in Yukaghir are confusing, as he does not employ proper historical phonological and other etymological arguments in determining the age of loanwords. Instead, he maintains that the Samoyed-Yukaghir loan contacts began only after the breaking up of Proto-Samoyed as the North Samoyed sub-branch moved to Northwestern Siberia (Rédei 1999: 18). This conclusion, however, is based on hypotheses regarding the prehistory of Samoyed peoples instead of actual linguistic arguments: Rédei adheres to Hajdú's (1987: 157) idea of a Samoyed homeland in the region of the Sayan mountains, but this is just one hypothesis among others, as is the idea that there even is a North Samoyed sub-branch in the first place (cf. Janhunen 1998: 459).

Even more problematic is Rédei's suggestion that certain Yukaghir words could have been borrowed from Ob-Ugric languages, or specifically

from Khanty (1999: 19–20). To validate such a conclusion one would have to show that some of the assumed loanwords in Yukaghir reflect specifically Ob-Ugric or Khanty sound changes, or involve vocabulary attested in Ob-Ugric or Khanty only. Neither of these two criteria, however, is fulfilled by the relevant etymologies in Rédei's corpus (1999: 45–49). Again, Rédei's suggestion of Khanty loans in Yukaghir seems to be based on Hajdú's (1987: 335–336) hypotheses, this time regarding the prehistory of Ob-Ugric peoples. These theories do not seem to be well-argued, however. For instance, it is certainly impossible to date the Ob-Ugric proto-language as late as the 4th century A. D. (cf. Rédei 1999: 20), i. e. contemporaneous with Proto-Finnic (Kallio, forthcoming) and Proto-Saami (Aikio 2012: 76–78). Unlike such transparently closely related language groups as Finnic and Saami, the Khanty and Mansi languages show a relationship obscured by such time depth that no definite phonological reconstruction of Proto-Ob-Ugric has been established so far (for various attempts, see Honti 1982, 1999; Sammallahti 1988: 502–513; Zhivlov 2006).

In general, the Uralic-Yukaghir loan etymologies presented by Rédei (1999) pose much of the same kinds of problems as Nikolaeva's Uralic-Yukaghir cognate etymologies: erroneous reconstructions, irregular sound correspondences, and unjustified segmentations of compared forms. While Rédei makes a plausible case for the existence of Uralic loanwords in Yukaghir, the errors in his analysis are so numerous that it hardly allows for reliable inferences to be made about the nature and age of the Uralic-Yukaghir contacts.

Recently Häkkinen (2012a; 2012b) has re-evaluated the Uralic-Yukaghir etymological material presented by Rédei. Based on the reanalysed data, Häkkinen argues that there has been borrowing first from Pre-Proto-Uralic to Early Proto-Yukaghir and later from 'East Uralic' (a hypothetical branch consisting of Ugric and Samoyed languages) to Middle Proto-Yukaghir. The question of more recent borrowing from Samoyed to (Late) Proto-Yukaghir is not dealt with in Häkkinen's paper. Relying on this stratification of loanwords, he proposes that Pre-Proto-Uralic was spoken in Siberia.

In general, Häkkinen's Uralic reconstructions are on a much more solid foundation than those of Rédei, as he has omitted many problematic etymologies. Nevertheless, Häkkinen's material still calls for further critical scrutiny. Two problems, in particular, must be pointed out. First, some of the comparisons in Häkkinen (2012b) still contain incorrect reconstruc-

tions on either the Uralic or the Yukaghir side; for instance, Häkkinen accepts the comparisons involving the alleged Uralic roots *jama- 'die' and *kuŋi 'moon', which were shown to be untenable above. The following case serves as a further example:

> PU *sälä- (acc. Häkkinen: *säla-) 'load' > Early PYuk *säli- > Middle PYuk *selə- > PYuk *(w)el- 'carry, lift' (cf. HDY 2603: *wele-). – YukT *welî-* 'lift, carry on the back' makes it entirely clear that the Yukaghir root must be reconstructed with initial *w-, a fact which is overlooked by Häkkinen. In YukK *elejī-*, *elī-* 'carry' there was a regular change *w- > Ø. Hence, the Yukaghir verb is phonologically incompatible with the Uralic one; also Rédei (1999: 43) had judged the comparison uncertain due to YukT *w-*. It can be added that the etymology is also semantically weak, as the meaning of the Uralic verb cannot actually be reconstructed as 'load' (*contra* Sammallahti 1988: 548; cf. UEW: 434). The reflexes mean 'get in (a boat or a sled)', 'mount (a horse)', which leaves the comparison to a Yukaghir verb meaning 'carry, lift' without semantic justification. In Uralic, the meaning 'load' is only attested in causative derivatives: Komi *sẹlt-* 'load' ← *sẹl-* 'mount (a horse), get in (a boat, sled, wagon, etc.)', KhE *lilt-* 'load (a boat or a sled)' ← *lel-* 'get in (a boat or sled)', MsE *töält-* 'load (a boat or sled)' ← *tööl-* 'get in (a boat or a sled)'. Also Fi *sälyttää* 'load, put a burden on' includes a causative suffix *-ttä-*, but the root verb has not been preserved in Finnic.

Second, there is a fatal problem with Häkkinen's treatment similar to Rédei's analysis: the presented Uralic-Yukaghir comparisons often do not show phonetically sensible sound correspondences. Whereas Rédei tried to dodge the problem by postulating many phonetically unmotivated and contradictory sound substitution rules, Häkkinen postulates many unmotivated and contradictory sound changes between his reconstructed Early Proto-Yukaghir and (Late) Proto-Yukaghir forms. Consider the following developments assumed by Häkkinen (2012b):

Middle PYuk *ś	> PYuk *č	Middle PYuk *eśə > PYuk *ečē 'father'
	> PYuk *jnč	Middle PYuk *eśə > PYuk *(w)ejnčī 'spirit protector'
Middle PYuk *t	> PYuk *δ	Middle PYuk *jotə- > PYuk *joδo- 'tie, bind'
	> PYuk *nt	Middle PYuk *etə- > PYuk *jent- 'appear'
Middle PYuk *l-	> PYuk *l-	Middle PYuk *lokə- > PYuk *loɣo- 'wash'
	> PYuk *ľ-	Middle PYuk *laqə- > PYuk *ľaqa- 'reach, arrive'

Needless to say, the assumption that two homonymous forms could have developed in completely different ways is in direct contradiction with the assumption of regular sound change. Even in other cases where one reconstructed proto-phoneme has two different outcomes in Yukaghir, the specific conditions that would account for the difference seem to be lacking. Yet further problems are caused by the postulation of highly unusual changes, such as nasals or stops appearing out of nowhere:

Middle PYuk *etə- > PYuk *jent- 'appear'
Middle PYuk *eśə > PYuk *(w)ejnčī 'spirit protector'
Middle PYuk *jomə- > PYuk *jompə 'disease'
Middle PYuk *komə > PYuk *qompə 'down on the ground'

Leaving questionable reconstructions aside, in the case of more convincing etymologies Häkkinen's hypotheses regarding the age and stratification of words are often open to alternative interpretations. For example, on the basis of PYuk roots such as *wonč- 'root' (< PU *wanča), *mon- 'say' (< PU *mana-), and *qon- 'go' (< PU *kani-) Häkkinen assumes that Early PYuk *a was substituted for PU *a in loanwords, and that there was a subsequent sound change Early PYuk *a > PYuk *o. However, in Proto-Samoyed the reflex of PU *a is in most instances an open back rounded vowel *å. Hence, PYuk *wonč-, *mon- and *qon- could simply have been borrowed from PSam *wånčo 'root', *mån- 'say' and *kån- 'go away', as in the PYuk vowel system *o would have been the phonetically nearest equivalent of an open back rounded vowel. A similar problem can be seen in Häkkinen's hypothesis of the change Early PYuk *ä > PYuk *e, supposedly reflected in e. g. PYuk *keľ- 'brother-in-law' < PU *käliw 'brother- or sister-in-law'. As PYuk had no open front vowel, the substitution of PYuk *e for foreign *ä may have taken place. Here, too, the source could have been Proto-Samoyed, where the word can be reconstructed as *kälü 'brother-in-law'.

Even though Häkkinen's (2012a; 2012b) treatment of Uralic-Yukaghir loan etymologies can certainly be characterized as more critical than that of Rédei (1999), his way of applying the comparative method to Yukaghir is nevertheless highly inconsistent. Hence, his conclusions regarding Pre-Proto-Yukaghir phonology and the age of Uralic-Yukaghir contacts cannot be accepted as valid.

8. A reassessment of Uralic loanwords in Yukaghir

In order to shed more light on the contact history of Uralic and Yukaghir, an even more critical and methodologically consistent approach is needed. As an attempt for such an approach, I have reevaluated the material presented by Rédei (1999) and Häkkinen (2012a; 2012b), as well as searched HDY for potential new loan etymologies unnoticed in previous studies. As a starting point for this research, I chose the hypothesis that Uralic loanwords in Yukaghir, at least for the most part, derive from the Samoyed branch. There were two reasons for this assumption. First, for geographical reasons alone a contact scenario between Samoyed and Yukaghir appears *a priori* the most plausible one. Second, it seems that this hypothesis provides the most salient explanation of the previously known material, when sufficiently critically evaluated. Rédei's hypothesis of borrowing from Khanty was abandoned because it does not seem to be supported by any clear evidence. As a result, the search yielded 43 loan etymologies, which are presented in Appendix C. It should be emphasized that even this critically compiled material includes etymologies that must be treated as plausible but hypothetical, rather than certain; as the results presented below depend on the validity of the etymologies themselves, they are to be seen as somewhat tentative.

Based on the etymologies in Appendix C, it is possible to postulate the following two interlocking hypotheses:

1) While many of the apparent loanwords seem to derive from Proto-Samoyed or possibly even from later Samoyed language forms, some seem to reflect Uralic phonological features that point to a Pre-Proto-Samoyed period of borrowing.[13]
2) Some of the most conspicuous lexical matches between Yukaghir and Finno-Ugric, lacking a counterpart in Samoyed, could be explained by borrowing from Samoyed (instead of Ob-Ugric or Khanty) after all: these Yukaghir words could derive from a more archaic Pre-Proto-Samoyed language, and their absence in modern Samoyed languages would be due to later lexical loss.

The justification for the first hypothesis is phonological; the sound correspondences and phonological nativization strategies of the loanwords will be discussed below. Let us first examine the consonant correspondences

in the material; as a starting point, the consonant inventories of Proto-Yukaghir, Proto-Samoyed and Proto-Uralic are given in Table 4.

As the table shows, the Uralic consonant system was simplified in Samoyed. The Samoyed consonant changes that are relevant to the discussion of the Yukaghir etymologies in Appendix C are listed below together with an example of each sound law; note that the change *l > *j is conditioned by several factors, and did not take place in all instances:

PU *s > PSam *t		PU *sala- 'steal' > PSam *tålä-
PU *ś > PSam *s		PU *śilmä 'eye' > PSam *səjmä
PU *d > PSam *r		PU *nüdi 'handle, shaft' > PSam *nir
PU *ď > PSam *j		PU *kaďa- 'leave behind' > PSam *kåjä-
PU *x > PSam Ø		PU *mexi- 'give, sell' > PSam *mi-
PU *l > PSam *j	/#_	PU *lumi 'snow' > PSam *jom[14]
	/V_i	PU *tuli 'fire' > PSam *tuj
	/_C	PU *śilmä 'eye' > PSam *səjmä
	(but:	PU *sala- 'steal' > PSam *tålä-)
PU *k > PSam Ø	/_i	PU *ulki 'pole' > PSam *uj
		PU *ńi̯rki 'cartilage' > PSam *ńe̯r

PYuk				**PSam**				**PU**				
p	t		k/q	p	t		k	p	t			k
	č	ć			č				č	ć?		
	s				s				s	ś	š	
	δ		ɣ						d	ď		
m	n	ń	ŋ	m	n	ń	ŋ	m	n	ń		ŋ
	l	ɾ			l				l			
	r				r				r			
w		j		w		j		w		j		x

Table 4: Proto-Yukaghir, Proto-Samoyed, and Proto-Uralic consonant inventories (HDY: 65; Janhunen 1981: 251; 1998: 62; Sammallahti 1988: 482, 486)[15]

As is well-known, the development of the PU sibilants *s and *ś in Samoyed is for the most part identical to that in Mansi. Furthermore, also in Khanty and Hungarian a change PU *ś > *s took place, whereas the original PU *s is reflected as Hungarian Ø and Proto-Khanty *ʟ. According to the traditional view, PU *s first changed into a dental spirant *ϑ in Proto-Ugric, which then merged with *t in Mansi, changed into an unvoiced lateral *ʟ in Proto-Khanty (which is reflected as *ʟ*, *l*, *j*, *t* and ϑ in the Khanty languages), and was lost in Hungarian. The fact that the development of PU sibilants is identical in Mansi and Samoyed suggests that also the Samoyed development *s > *t involved Pre-Proto-Samoyed *ϑ as an intermediate stage; this is, indeed, a phonetically plausible path of change, whereas a direct change from a sibilant to a stop is much harder to imagine. Apparently, the restructuring of the sibilant system through the changes *s > *ϑ and *ś > *s is an old areal phenomenon connecting Samoyed and Ugric.

Against this background it is interesting to note that there are several potential loanwords where Yukaghir Ø corresponds to Pre-Proto-Samoyed (and Ugric) *ϑ:

PU *nusi- 'scrape' > Pre-PSam *nəϑ- ? > PYuk *nō- 'scrape, scratch'
PU *sala- 'steal' > Pre-PSam *ϑålä- ? > PYuk *olo- 'steal'
PU *särä 'fork, branched thing (?)' ? > Pre-PSam *ϑärä > PYuk *ere 'fork'
PU *soŋi- 'penetrate, enter' > Pre-PSam *ϑoŋ- ? > PYuk *oŋ- 'put on, fit in'
PU *sula- 'melt, thaw' > Pre-PSam *ϑəlä- ? > PYuk *aĭ- 'thaw'

Assuming that at least some of these etymologies are correct, they suggest that Pre-Proto-Yukaghir possessed some kind of weak unvoiced fricative sound (maybe *ϑ, *f, *φ or *h) or the like, which was substituted for Pre-PSam *ϑ.

Another possibility is that the words were borrowed before the change *s > *ϑ in Pre-PSam, in which case Pre-PYuk would have undergone a change *s > Ø. This interpretation is suggested by Häkkinen (2012a), who argues that there is a later stratum of 'East Uralic' loans displaying a different correspondence, namely PU *s (> PSam *t) ~ PYuk *l. In Häkkinen's view, the development *s > *t did not involve *ϑ as an intermediate stage but an unvoiced lateral fricative *ʟ instead; this intermediate stage was, then, preserved in Proto-Khanty. He proposes that loanwords showing the correspondence PU *s (> PSam *t) ~ PYuk Ø are very old, deriving

from Pre-Proto-Uralic, and that two words were borrowed into Yukaghir at a stage when *ɪ occurred: PYuk *larq- 'root' (cf. PU *särä 'root, vein, branched thing') and *leɣ- 'eat' (cf. PU *sewi- 'eat'). As further evidence of the Pre-PYuk change *s > Ø, he refers to Nikolaeva's proposal that Yukaghir Ø can correspond to foreign *s also in loans from other language families (HDY: 67).

The data supporting this interpretation are highly questionable, however. First, as noted above, PYuk *larq- ~ PU *särä is very probably a false comparison due to the unexplained *q in the Yukaghir form, which leaves PYuk *leɣ- ~ PU *sewi- as a likely case of chance resemblance due to the lack of any plausible parallels supporting the correspondence PYuk *l ~ PU *s. Second, Nikolaeva (HDY: 67) actually provides only two examples of PYuk Ø corresponding to *s in other language families: PYuk *iŋer (> YukK *iŋer* 'pit, hole') ~ Tungusic *saŋa(r) (HDY 2641) and PYuk *iŋčī (> YukK, T *iŋďī* 'sinew, thread') ~ Proto-Altaic *síŋri 'sinew' (HDY 580). The second example can be immediately dismissed, as not only the reconstruction itself but also the very existence the Altaic language family is in serious doubt (see, e. g., Georg 2011). As the first example involves a unique correspondence PYuk Ø ~ Tungusic *s, it may be a mere chance resemblance. Thus, the evidence supporting the hypothesis of a Pre-PYuk sound change *s > Ø is very weak.

In addition to the correspondence PYuk Ø ~ PSam *t (< PU *s), there is another possible Uralic phonological archaism that occurs in potential Samoyed loanwords in Yukaghir. There are two cases where the PYuk lateral *l occurs in the place of an expected PSam *j (< PU *l):

PU *lonśa 'calm' > Pre-PSam *lånså ? > PYuk *lančin- 'slow, calm'
PU *mälki 'breast' > Pre-PSam *mäl ? > PYuk *mel- 'breast'

Unfortunately, this hypothesis is complicated by the fact that neither of these Uralic words is actually attested in Samoyed. If they were, however, the expected forms would be PSam *jånså and *mäj due to the change *l > PSam *j (cf. PU *lomi 'snow' > PSam *jom, PU *ulki 'pole' > PSam *uj 'tent pole'). The idea that these words were adopted from Pre-PSam before the change *l > *j, and were later lost in Samoyed itself, remains hypothetical.

There are also individual loan etymologies that may testify of some other Uralic phonological archaisms. A loan possibly preceding the change PU *d > PSam *r is PYuk *köδ- 'tighten' < Pre-PSam *küdə- (> PSam *kürə-

'tighten; waist band, string for tightening something'); the Samoyed word reflects PU *käwdi 'rope, string' (Aikio 2006a: 19–20). A potential parallel for the correspondence PSam *r ~ PYuk *δ is PYuk *meδiń 'as soon as' (? < Pre-PSam *mädə > PSam *märə 'soon'). However, in this case the etymology of the Samoyed word is unknown, so there is no external evidence for the hypothesis that PSam *r in this word really derives from earlier *d, save for the Yukaghir word itself.

Some kind of intermediate stage of the development PU *ď > PSam *j, in turn, might be reflected in PYuk *saľqə 'loon' (cf. PU *śoďka ~ *śodka 'goldeneye'); note that in Mansi and Permic the reflex of PU *ď is *ľ*, and in Samoyed the development may have had *ľ as an intermediate stage. This remains quite hypothetical, however, as the PU word for 'goldeneye' has no known reflex in Samoyed, and furthermore the Permic reflexes (Komi *śuv*, Udmurt *śulj*) suggest PU *d instead of *ď. A particularly interesting PU archaism may be found in the voiced velar spirant in PYuk *weɣ- 'lead, carry' ? < Pre-PSam *wix- (> PSam *ü- 'drag'); the verb could be a loan from an archaic Pre-PSam reflex of the PU verb *wixi- 'lead, take (somewhere)'. However, the seemingly unmotivated vowel correspondence PYuk *e ~ Pre-PSam *i remains an additional problem here.

Next, let us consider vowel correspondences. The Proto-Yukaghir and Proto-Samoyed vowel systems can be seen in Table 5.

PYuk				**PSam**			
i		į	u	i	ü	į	u
e	ö		o	e	ö	ę	o
		a		ä		a	å
	ə				ə	ə	

Table 5: The vowel inventories of Proto-Yukaghir (HDY) and Proto-Samoyed (Helimski 2005)

As the table shows, the vowel inventory of Proto-Yukaghir was much smaller than that of Proto-Samoyed. Therefore, it is predictable that certain Samoyed vowel distinctions have become neutralized in loanwords adopted into Yukaghir. In particular, the following four substitutions must be pointed out:

PSam *å > PYuk *o: PYuk *mon- 'say' (< PSam *mån- / *mon-), PYuk ?*ńomə 'hare' (< PSam *ńåmå), PYuk *ńorćə 'moss, lichen' (< PSam *ńårso), PYuk *olo- 'steal' (< Pre-PSam *ðålå-), PYuk *qon- 'go, walk' (< PSam *kån-), PYuk ?*solijə 'intestine, gut' (< PSam ?*sålä), PYuk *so/aǐqə 'loon (Gavia)' (< Pre-PSam *såǐkå), PYuk *tono- / *toŋo- 'follow, chase, drive' (< PSam *tånå-t/s-), PYuk *wonč- 'root' (< PSam *wånčo)

PSam *ä > PYuk *e PYuk *ečē 'father' (< Pre-PSam ?*ä(j)ćä), PYuk *eme- 'mother' (< PSam *ämä), PYuk *ere 'fork' (< Pre-PSam *ðärä), PYuk *meðiń 'as soon as' (< Pre-PSam *mädə-), PYuk *mel- 'breast' (< Pre-PSam *mäl), PYuk *pel- 'old man, husband' (< PSam *pälä)

PSam *ę > PYuk *e PYuk *sēr 'hail' (< PSam *sęr), PYuk *mej- 'take' (< PSam *mę-), PYuk *ǐer- / *ǐir- 'shake' (< PSam *lęrə-)

PSam *ə,*ə̆ > PYuk *a PYuk *aǐ- 'melt, thaw' (< Pre-PSam *ðəlä-), PYuk *čant- 'upriver, uphill' (< PSam *čənčå-), PYuk *lamtə- 'low' (< PSam *ləmto), PYuk *ńoro- 'moss; bog' (< PSam *ńərV), PYuk *paj- 'strike, hit' (< PSam *pəjä-), PYuk *qanć- 'cold' (< PSam *kənsä-), PYuk *sapa- 'hit' (< PSam *səppə-)

The first two substitutions have already been discussed in section 7, and they can be straightforwardly explained by the lack of an open front vowel (*ä) and an open back rounded vowel (*å) in Proto-Yukaghir. The same applies to the third substitution: there was no mid back unrounded vowel (*ę) in Proto-Yukaghir, either. As for the fourth substitution, Yukaghir actually had a vowel *ə̆, but it was confined to unstressed (mostly non-initial) syllables. Therefore, a substitution PSam *ə > PYuk *a in stressed initial syllables seems well motivated, at least if PSam *ə was in fact phonetically an open-mid or near-open vowel (approximately *[ɐ]) in the source language; this would be roughly equivalent to the phonetic value of its modern reflex in Nenets, for instance.

There are also a few non-trivial vowel correspondences attested in individual etymologies. Plausible explanations can be proposed for most cases:

PSam *ə > PYuk *o: PYuk *nō- 'scrape, scratch' (< Pre-PSam *nəθ-). – PSam *ə is a reflex of PU *u: PU *nusi- 'scrape, scratch'. It is conceivable that the verb was borrowed from some intermediate form where the vowel had already become reduced, but not yet lost its labiality (Pre-PSam *nŭθ-, *nŏθ- or the like).

PSam *a > PYuk *e: PYuk *(w)ejnčī 'good spirit, shaman's spirit protector' (< PSam *wajŋtut). – Here, probably, the influence of following *j has caused the fronting of the vowel.

PSam *o > PYuk *ö: PYuk *köj 'fellow, boy, man' (< Pre-PSam *koj). – Here, too, the following *j seems to be the cause of front vocalism.

PSam *ə > PYuk *e: PYuk *pē 'mountain, rock, big stone' (< PSam *pəj). – Here, too, one can attribute the vocalism to the effect of *j; perhaps the glide had become vocalized in the source language, in the same way as in NenT *pæ* 'rock'.

PSam *ü > PYuk *ö: PYuk *köδ- 'tighten' (< Pre-PSam *küdə-). – This vowel substitution can be straightforwardly explained by the lack of a close front rounded vowel (*ü) in Yukaghir.

Only in rare cases is there no obvious explanation to an apparently anomalous vowel correspondence. These include an unexpected PYuk *a in *paŋq- 'seine' (cf. PSam *poŋkå 'net'), PYuk *ö in *jõ 'belt' (cf. PSam *jiə ~ *niə 'belt'), and PYuk *e in *kē 'slot' (cf. PSam *kiə 'hole') and *weɣ- 'lead' (cf. Pre-PSam *wix- > PSam *ü- 'pull, drag').

Hence, the 43 Samoyed loan etymologies for Yukaghir words proposed in Appendix C are, for the most part, phonologically quite regular and based on well-motivated sound substitutions of both consonants and vowels. There are certain reservations, however, that we must be clear about. The material is relatively small, and there are potential problems with some etymologies involving short forms and nursery words. Matches in lexical roots of the structure *CV- (e. g. PYuk *kē- 'slot' ~ PSam *kiə 'hole') are more likely than others to involve chance correspondences; on the other hand, matches of roots of the shape *CVCC- (e. g., PYuk *wončˉ ~ PSam *wånčo 'root') are quite reliable in this respect. The matching forms of 'mother' (PYuk *eme- ~ PSam *ämä) and 'father' (PYuk *ečē ~ PSam *äjsä) might also be coincidental, as similar nursery words are found in many languages.

Perhaps the most hypothetical feature of the etymologies proposed here is the assumption of borrowing of Pre-Proto-Samoyed words into Yukaghir, which were later lost in Samoyed. However, the number of such etymologies is only eight, i. e. less than one fifth of the material. All of these cases involve Finno-Ugric words which are otherwise very widely attested, so it does seem reasonable to hypothesize that in these cases the absence of a Samoyed cognate reflects lexical loss.

Thus, even though there are uncertainties connected with some of the 43 etymologies, it appears safe to conclude that the material strongly supports the existence of Proto-Samoyed borrowings in Yukaghir, and that there are also strong indications of borrowing already from a Pre-Proto-Samoyed language form into Yukaghir. The assumption of such borrowing can also explain a part of the lexical similarities between Uralic and Yukaghir that have been thought to testify of genetic relationship, even some basic vocabulary items such as PYuk *aŋa ~ PU *aŋi 'mouth' and PYuk *ńʲ/nim ~ PU *nimi 'name'. Nothing in the phonological form of these words prevents us from assuming that they were borrowed from Proto-Samoyed to Yukaghir, and hence they do not provide unambiguous evidence for genetic relationship.

It must be admitted, however, that the high proportion of basic vocabulary items remains a puzzling feature of the corpus of potential Samoyed loanwords in Yukaghir. This is observed also by Piispanen (2013: 169), who criticizes the assumption of borrowing by stating that "the lexicon in Yukaghir with Uralic correspondences does not appear to constitute a particular cultural subgroup of borrowed vocabulary of any given chronological period or culture." However, it must be noted that the assumption of genetic relationship does not provide a better overall account of the material, even if it seems more attractive from a semantic perspective. First, as we have seen, regardless of similarities in basic vocabulary, it has not been possible to establish any system of regular sound correspondences between Proto-Uralic and Proto-Yukaghir. Second, if we assumed that the corpus of 43 words represent genetic inheritance rather than borrowing, it would become quite difficult to understand why the Proto-Yukaghir forms seem to show a better correspondence with Proto-Samoyed than they do with Proto-Uralic.

It can be tentatively suggested that the high proportion of basic vocabulary in the corpus partially results from selection bias. The majority of the suggested 43 loan etymologies in Appendix C are based on a reinterpretation of Uralic-Yukaghir word comparisons that have initially been claimed to support genetic inheritance, and etymological studies seeking to uncover evidence for genetic relationship have naturally tended to concentrate on basic vocabulary. Therefore, it is conceivable that in-depth etymological research of Samoyed and Yukaghir could reveal more loans outside basic vocabulary; further study in the future will show whether this hypothesis can be verified.

9. Conclusion

The results of the study can now be summarized. Regarding the possibility of a Uralic-Yukaghir genetic relationship, it has been shown that a great majority of the proposed Uralic-Yukaghir lexical comparisons fail to fulfil very basic criteria for etymological cognation, and thus they also fail to provide any evidence whatsoever for a genetic relationship between Uralic and Yukaghir. A critical analysis of the material has left us with so few promising etymologies that it appears to be impossible to establish a system of regular sound correspondences between the two families. This being the case, proof of cognation remains elusive even in the case of conspicuous lexical lookalikes. While one is tempted to hypothesize that some of the tantalizingly similar basic vocabulary items could be genetic cognates, the problem is that only a very small number of such parallels have been found, and in the absence of criteria for phonological regularity, there is no way to verify cognation.

It does not appear very likely that future research could uncover such a large number of new Uralic-Yukaghir etymologies that a system of regular sound correspondences could be established. Hence, if Uralic-Yukaghir will ever be successfully established as a language family, the decisive evidence will probably have to be found at other levels of language. The morphological comparisons presented so far are, however, entirely unconvincing. The two language families seem to share no morphological patterns or paradigms, but merely some isolated suffixes of similar form and function. The compared suffixes are short and contain typologically common and highly frequent consonants, and most important, many of the similarities between them turn out to be only apparent as the reconstructed background of the suffixes in each family is taken into proper consideration.

Thus, a critical examination of the alleged Uralic-Yukaghir parallels has shown that:

1. there are only about two dozen lexical items that could reasonably be suspected to be cognates;
2. many of the lexical similarities, including also ones in basic vocabulary, can be explained as Samoyed loanwords in Yukaghir;
3. no system of regular sound correspondences between Proto-Uralic and Proto-Yukaghir can, apparently, be demonstrated;
4. the proposed correlations in morphology can easily be explained as products of chance.

The inevitable conclusion is that according to our present understanding, Uralic and Yukaghir are not genetically related. Of course, the possibility remains that such a hypothetical relationship will be demonstrated in the future, but in the present state of research such a possibility amounts to nothing more than speculation. The extreme scarcity of promising evidence for the Uralic-Yukaghir theory indicates that if such a genetic relationship nevertheless exists, it must be very remote indeed. Moreover, it has become clear that most of the purported lexical and morphological parallels between Uralic and Yukaghir are simply illusory, and thus irrelevant for any future attempts to validate the theory.

There is a valuable methodological lesson in this result. It is a rather common method for scholars aiming to prove a distant genetic relationship to present a corpus of etymologies that are based on comparisons of reconstructed word roots taken from etymological dictionaries of the language families compared. This is a highly problematic practice for two reasons. First, etymological dictionaries frequently do not reflect the most up-to-date views of the historical phonology and etymological study of the family in question, and thus often contain many outdated and imprecise reconstructions. Second, it is usually not the aim of an etymological dictionary to present only the most reliable and solidly established proto-language etymologies. Even in the case of very thoroughly studied language families such as Uralic and Indo-European, such dictionaries also include large numbers of lexical comparisons and reconstructions that are less certain and even speculative. Hence, by mechanically harvesting reconstructions from etymological dictionaries for the purpose of long-range comparison, it is remarkably easy to produce a superficially plausible-looking corpus of word comparisons which simply loses all validity once the actual primary data within the compared families is taken into critical scrutiny.

The present results have important repercussions for 'long-range' comparisons involving Uralic and Yukaghir. As attempts to demonstrate a genetic relationship between Uralic and Yukaghir with generally accepted methods of comparative linguistics have failed so far, it makes little sense to include both Uralic and Yukaghir as a subgroup in some more far-flung hypothesis of remote linguistic kinship such as 'Nostratic' (e. g., Bomhard 2008), 'Eurasiatic' (Greenberg 2000; 2002) or 'Uralo-Siberian' (Fortescue 1998); cf. Campbell (1998), who demonstrates the untenability of Uralic comparisons in the Nostratic framework. If Uralic and Yukaghir could first be shown to be genetically related through a pairwise comparison

of the two families, it would then be perfectly reasonable to explore the possible further genetic connections of Uralic and Yukaghir. But from a methodological point of view it would be quite strange to assume that such a demonstration could be achieved by multilateral comparison – i. e., by extending the comparative framework to include several other language families – as long as no genetic relationship can be shown by pairwise comparison.

In regard to the prospects of 'long-range' language comparison these conclusions may be rather dispiriting, as Uralic-Yukaghir has nevertheless often been considered one of the better-argued deep phylogenetic connections in Northern Eurasia (see, e. g., Ruhlen 1987: 69–70). It would, however, be a rather one-sided way of thinking to consider the demonstration of genetic connections between languages as the only kind of meaningful result in 'long-range' historical linguistics. In demonstrating the invalidity of the theory of a genetic relationship between Uralic and Yukaghir we have, as a by-product, uncovered evidence of the validity of an areal relationship between them – or, more precisely, between Samoyed and Yukaghir.

The areal connection between Samoyed and Yukaghir has a notable time-depth: there seems to be evidence of contact between the two language groups even on a Pre-Proto-Samoyed level of linguistic development. If this result holds, it has important implications for the reconstruction of both Yukaghir and Uralic prehistory. In historical times Samoyed and Yukaghir languages were separated by a large expanse of the Central Siberian Plateau dominated by speakers of Turkic and Tungusic, but of course, this cannot have been the situation in more remote times. It is known that Yukaghirs have earlier inhabited areas far west of their present-day territories, according to some views as far as the Yenisei (Rédei 1999: 2–4). In light of loanwords from Proto-Samoyed and Pre-Proto-Samoyed, this is also the direction where the origin of the Yukaghir language family should be sought. This is a major question for future research into Siberian ethnolinguistic prehistory to solve.

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Notes

1. This figure excludes entries 1129, 2048 and 2189. According to the language index of HDY, a Samoyed form is supposed to be cited under entry 2048 and a Finno-Ugric form under entry 2189, but none can be found in the entries themselves; the latter entry is a Russian loanword. In entry 1129, a Uralic reconstruction *rVmpV- 'swing' is given, together with a reference to UEW (241); no such reconstruction can be found there, however, nor apparently elsewhere in UEW.
2. Nikolaeva states that PYuk *k and *q can probably be treated as allophones of one phoneme, even though she transcribes them with separate symbols (HDY: 66). In this paper I have followed Nikolaeva's practice.
3. The comparison of YukK *ki-* 'two' with PU *kVkta/ä 'two' is hardly feasible, as the words show no similarity beyond the initial velar stop; this equation has been suggested in some earlier Uralic-Yukaghir comparisons, but it is no longer cited by Nikolaeva (HDY 209). On the other hand, Piispanen (2013: 170) goes as far as to compare all Uralic and Yukaghir numerals from 1 to 4. However, the roots of the Yukaghir numerals are reconstructed as PYuk *irk- 'one', *ki- 'two', *ja- 'three', and *jelek- 'four', and to match them with PU *ükti 'one', *kVkta/ä 'two', *ko/ulmi 'three' and *neljä 'four' requires quite a leap of faith. As for *ükti 'one', Piispanen postulates the ad hoc development *kt > *tk > *rk, for which no parallels are known in Yukaghir.
4. The Uralic etymology is considered uncertain in UEW (403), but in light of the additional Permic cognates discovered by Helimski (1996: 63), the reconstruction of the PU word *punśV 'kneecap' appears plausible: SaaL *buttjes ~ butjes* 'kneecap of a reindeer', Komi *pi̮ʒes*, Udm *pi̮dés ~ pi̮ʒes* 'knee', NenT *punco*, EnT *pudá*, Ngan *hüńśü* 'fat on the knee (of a reindeer)'. The vowel *u* of the Saami cognate is irregular, however.
5. Sammallahti only lists cognates from Khanty and Samoyed, but clearly MariE *nuže-* 'rub, scrape off' and MdE *nozo-rda-* 'scratch' also belong in this cognate set; both are regular reflexes of PU *nusi-.
6. Admittedly, the Uralic cognate set is semantically quite heterogeneous; the meaning 'fork' is attested in Saami (e. g., SaaL *sárre*). UEW does not cite the Saami cognate, but it is given by Sammallahti (1988: 548).
7. Nikolaeva compares PYuk *qon- to the Samoyed reflex of this Uralic stem, PSam *kån- 'go away'. However, the Samoyed verb goes back to PU *kani-. Elsewhere in Uralic the verb root is not preserved in underived form, but it is widely attested in the causative formation *kan-ta- 'transport, carry' (Janhunen 1981: 221, 231; Sammallahti 1988: 538).
8. Precisely this logic is, of course, followed by many scholars working in the Nostratic framework. An example is provided by Hyllested (2003), who claims to demonstrate regular correspondences between Indo-European laryngeals and Uralic and Yukaghir stops and affricates. Needless to say, our failure to find any regular sound correspondences between Uralic and Yukaghir in the first place does not lend credence to claims of regular Indo-Uralic-Yukaghir correspondences. On a more general level, one can say that all attempts so far to relate Uralic to "Nostratic" are vitiated by numerous errors in the Uralic data and reconstructions (for detailed discussion, see Campbell 1998); this is also the case with Hyllested's etymological comparisons.
9. Uralic 1SG and 2SG pronouns fall into two distinct cognate sets with complementary distributions, as first noted by Janhunen (1981: 232–233): Saami, Mordvin and Samoyed

show reflexes of *mun 'I' and *tun 'you', whereas most other branches have reflexes of the disyllabic front-vocalic forms *minä and *tinä (note, though, that certain Ugric languages show further deviances in personal pronouns: initial Ø- in 1SG and *n- in 2SG). The background of this duality is so far unexplained. This state of affairs poses further problems for external comparisons: as 1SG and 2SG pronouns show serious problems of reconstruction even within Uralic, it is speculative to further connect these pronouns to any Yukaghir forms (or to forms in any other language family, for that matter).

10. It has occasionally been suggested that Proto-Uralic also had content word roots of the shape *CV-. Helimski (1999: 78), for instance, reconstructs verb roots such as *mi-, *wi- and *to-, which correspond to *mexi- 'sell', *wixi- 'lead' and *toxi- 'bring' in Janhunen's (1981) and Sammallahti's (1988) reconstructions. To refute this idea we need only to look at Saami data. First, Helimski presents no explanation as to how Saami developed a constraint forbidding the root structure *CV- in content word roots, if such a structure supposedly was originally allowed in Uralic. Second, and more important, those roots that Helimski reconstructs as monosyllabic are reflected in Saami as disyllabic stems ending in *-kę- (< *-ki-): cf. SaaSk *miõkkâ-* 'sell', *viikkâ-* 'take', SaaS *doeke-* 'sell' (< Proto-Saami *miekę-, *vikę-, *tuokę- < Pre-Proto-Saami *mēki-, *wīki-, *tōki-). The sequence *-ki- cannot be a suffix, because no such suffix is known, and because no monosyllabic roots can be posited as bases of derivatives in Saami in the first place. Thus, to explain the facts one would be forced to postulate a very strange phonological change: PU *CV- > Pre-Proto-Saami *CV̄ki-, i. e. the emergence of a syllable *-ki- out of nowhere combined with lengthening of the preceding vowel. This change would be made all the more bizarre by having been confined to content word roots and leaving grammatical roots such as *ke- 'who', *mi- 'what', *tä- 'this' and *le- 'be' unaffected – the latter are still monosyllabic in Saami (cf. SaaN *gii* : *gea-* 'who', *mii* : *ma-* 'what', *dát* : *dá-* 'this', *lea-* 'be'). From a typological point of view such a development seems unnatural enough to be regarded as an impossibility.
11. The instrumental case is not attested in Tundra Yukaghir.
12. The Kolyma Yukaghir 'translative' and 'destinative' listed in the case paradigms in Nikolaeva (2000: 44–47) have been omitted; Maslova (2003a: 126–128) uses the term 'transformative' for these and analyses them as imperfective converb forms.
13. Häkkinen (2012a) interprets the same kinds of archaisms as evidence of considerably earlier borrowing from Pre-Proto-Uralic to 'Early Proto-Yukaghir'. This interpretation, however, is based not so much on actual etymological and phonological arguments, but instead on Häkkinen's assumptions regarding Uralic prehistory, in particular his theory that Proto-Uralic was spoken in the area surrounding the Volga-Kama confluence (Häkkinen 2009).
14. The change PU *l > *PSam *j did not take place in initial position if the following vowel was PU *į (Aikio 2014b: 86).
15. Janhunen (1981) and Sammallahti (1998) do not reconstruct *ć and *š into Proto-Uralic; Sammallahti considers these two phonemes Proto-Finno-Ugric innovations. It has later turned out, however, that *š occurs in at least two etymologies with a Samoyed cognate: PU *šelki- 'fly' > PSam *tej- (Aikio 2002: 26) and PU *kajšV 'sickness' > PSam *kâjtə (Aikio 2014a: 3–5). The phoneme *ć does not seem to occur in any etymology with a reliable Samoyed cognate, so if one adheres to the traditional binary taxonomy of the Uralic family, then it cannot be reconstructed into Proto-Uralic.

Abbreviations

EnF	Forest Enets
EnT	Tundra Enets
Est	Estonian
Fi	Finnish
Hung	Hungarian
Kam	Kamas
KhE	East Khanty
KhN	North Khanty
KhS	South Khanty
Komi	Komi
MariE	East (Meadow) Mari
MariW	West (Hill) Mari
Mat	Mator
MdE	Erzya Mordvin
MdM	Moksha Mordvin
MsE	East Mansi
MsN	North Mansi
NenF	Forest Nenets
NenT	Tundra Nenets
Ngan	Nganasan
PFi	Proto-Finnic
PIE	Proto-Indo-European
PKh	Proto-Khanty
PMari	Proto-Mari
PMd	Proto-Mordvin
PMs	Proto-Mansi
PPerm	Proto-Permic
PSaa	Proto-Saami
PSam	Proto-Samoyed
PU	Proto-Uralic
PYuk	Proto-Yukaghir
SaaI	Inari Saami
SaaK	Kildin Saami
SaaL	Lule Saami
SaaN	North Saami
SaaS	South Saami
SaaSk	Skolt Saami
Slk	(Proto-)Selkup
SlkK	Ket Selkup
SlkTa	Taz Selkup
SlkTy	Tym Selkup
Udm	Udmurt
Veps	Vepsian
YukK	Kolyma Yukaghir
YukT	Tundra Yukaghir

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Appendix A: The Uralic-Yukaghir comparisons in HDY

This appendix includes a list of the Uralic-Yukaghir etymological comparisons in HDY. The numbering refers to the entry numbers in HDY. The PU reconstructions have been revised from those given in UEW according to the theory of Uralic historical phonology by Janhunen (1981) and Sammallahti (1988), taking into account some modifications proposed in Aikio (2012). Questionable reconstructions are marked with a question mark (e. g., ? *mentä-), and rejectable reconstructions are marked with a double asterisk (e. g., **ćaka). Correspondences of initial and medial consonants as well as first-syllable vowels are given for those etymologies where a Proto-Uralic reconstruction can be established. In the column 'notes' the following symbols are used:

? The Uralic-Yukaghir comparison is classified as "highly problematic" in HDY.
M The comparison has morphological problems (there is unaccounted stem-final material in one or both of the compared forms).
S The compared Uralic and Yukaghir forms show a poor semantic match.
U The Uralic etymology is classified as uncertain by UEW.
× The Uralic etymology is uncertain or rejectable (due to arguments presented in Appendix B).

entry	PYuk	PU	C-	V	-C_1-	-C_2-	notes
33	*āl- 'below, under'	*i̯la-		a/i̯	l/l		
35	*aľ- 'melt, thaw'	*sula-	Ø/s	a/u	ľ/l		
64	*an- 'speak; word, speech, language'	*äni 'voice, song'		a/ä	n/n		
65	*an- 'there'[16]	*u/o- 'that'		a/u,o	(n/Ø)		
74	*aŋa 'mouth, opening'	*aŋa- 'open', *aŋi 'mouth, opening'		a/a	ŋ/ŋ		
139	*awa 'elder, elder sister'	**apV 'elder sister'					×
221	*čāqə 'freeze'	**ćaka 'thin ice'					× ?
284	*čiŋičə- 'darkness, night'	**či/üŋV 'fog, mist'					× M
309	*čolo- 'add, join'	*ćolmi 'knot; tie'	č/ć	o/o	l/l	Ø/m	? M
311	*čolqə 'spike for breaking ice; move, stir'	*śi̯lka 'pole, rod'	č/ś	o/i̯	l/l	q/k	?
313	*čomo- 'big, large'	**čama 'straight, upright'					× ?

entry	PYuk	PU	C-	V	-C$_1$-	-C$_2$-	notes
329	*čor-(qə-) ‘clearing, tundra; firm, hard’	**ćarV ‘firm, hard, strong’					×
362	*čupo- ‘sharp; sharpen’	**ćuppa					× U
403	*ečē ‘father’	**äćä					×
436	*əl- (negative marker)	*e/ä/a- (negative verb)[17]		ə/V	(l/Ø)		M
442	*eľi ‘first; while’	*edi ‘front, ahead’		e/e	ľ/d		
449	*em- ‘dark’	**simV ‘black / rust’					× ?
451	*eme ‘mother’	*e/ämä		e/e,ä			
458	*en- ‘this’[18]	*e-		e/e	(n/Ø)		
467	*eńe ‘address to a baby/woman’	**enä ‘mother’					×
470	*eŋk- ‘back of the head’	**se/äŋkV					× U
560	*iľe- ‘scold, abuse’	*alV- ‘say invocations’		i/a	ľ/l		?
614	*iw- ‘suck’	*imi-		i/i	w/m		
620	*jā ‘birch tree’	**juwe					×
671	*jēľə- ‘boil; sun’	**jelä					× U S
672	*jelek- ‘four’	*neljä	j/n	e/e	l/l	Ø/j	?
691	*jə̄ ‘belt’	**jäji					×
697	*joδo- ‘tie, bind’	**jorV- ‘roll’					× ? U
704	*jolo- ‘behind, after’	*jälki ‘trace’	j/j	o/ä	l/l	Ø/k	?
768	*kē- ‘through; slot’[19]	? *ko/ulV	k/k	ē/o,u	(Ø/l)		× ? U
778	*kel- ‘come’	*kälä- ‘wade, rise’[20]	k/k	e/ä	l/l		S
780	*keľ- ‘brother-in-law’	*käliw ‘brother- or sister-in-law’	k/k	e/ä	ľ/l		
781	*kelinćə ‘worm’	**kVlV					× U
793	*ke/ir- ‘drop, fall’	*kirki- ‘fall’	k/k	e,i/i	r/r	Ø/k	
806	*kewe- ‘go away, leave’	**käwi-					× U
819	*kile- ‘wade’	*kulki- ‘go / flow’	k/k	i/u	l/l	Ø/k	S
823	*kimer ‘film, inner hide’	*kama ‘skin, crust, peel’	k/k	i/a	m/m		?
824	*ki/u(m)n- ‘ten’	*kümmin	k/k	i,u/ü	Ø,m/mm	n/n	?
826	*kin ‘who’	*ke/i	k/k	e/e,i	(n/Ø)		

entry	PYuk	PU	C-	V	-C$_1$-	-C$_2$-	notes
836	*kire ? 'knife'	*kurV	k/k	i/u	r/r		?
839	*kit/č 'end, beginning'	*kaća 'tip'	k/k	i/a	č,t/ć		× ? U
855	*köj 'fellow, boy, young man'	*koji 'man, male'	k/k	ö/o	j/j		
860	*kə̑kə 'head (of fish, animal)'	*kokka 'hook, hoe'	k/k	ə̑/o	k/kk		× U S
878	*könć́ə 'worm, larva'	? *kV(n)ćV 'tapeworm'	k/k	ö/V	n/n,Ø	ć́/ć	×
921	*kū 'snow'	**kumV					×
953	*kur- 'clutch'	**kuri-					×
955	*kurć́ə- 'crane'	*ku/i̯rki	k/k	u/u,i̯	r/r	ć́/k	
983	*ľäjə 'spleen'	? *d/lä/epp/pdä	ľ/d,l	ā/ä	Ø/p	j/d,p	× U
992	*lamtə- 'low, deep'	*li̯nti 'low-land, valley'	l/l	i̯/a	m/n	t/t	
997	*lanč́in- 'slowly'	**lä(ń)ćV[21]					× U
1004	*ľaqa 'reach, come, arrive'	*läkti- 'leave, go out'	ľ/l	a/ä	q/k	Ø/t	?
1005	*ľaqa- 'slot in a beam'	*lakśi- 'carve'	ľ/l	a/a	q/k	Ø/ś	?
1007	*larq- 'root'	*särä 'root, vein, fiber'	l/s	a/ä	r/r	q/Ø	?
1015	*law- 'floating log'	*loppV	l/l	o/a	w/pp		?
1016	*lV- 'down'	**lV					× U
1018	*ľə- 'be, exist'	*le- 'become; give birth'	ľ/l	ə/e			S
1019	*leɣ- 'eat'	*sex/wi-	l/s	e/e	ɣ/x,w		
1022	*lej- 'know, recall'	**lewdä-					× ? U
1038	*lepe- 'break off'	**rVppV-					× U
1040	*lep(k)- 'blood'	**leppä					× ? U S
1045	*lese- '(torn) rags'	**le/iśe-					× U S
1048	*lewej- 'summer, warm'	*lämpi 'warmth'	l/l	e/ä	Ø/m	w/p	
1059	*līpə 'spade'	**lippV					× U
1085	*lö/ump- 'top of a boot'	**lampa					× ? U
1112	*ľū- 'smoke'	*lewli 'vapour, breath, soul'	ľ/l	e/ū	Ø/w	Ø/l	
1141	*malć́/ljə 'cloudberry'	? *mVďV	m/m	a/o	l/ľ,ď	č́,j/j	×
1188	*mel- 'breast'	*mälki	m/m	e/ä	l/l	Ø/k	
1208	*menmə- 'jump'	*meni- 'go'	m/m	e/e	n/n	m/Ø	S
1221	*mət 'I'	*minä / *mun	m/m	ə/i,u	(t/n)		

entry	PYuk	PU	C-	V	-C¸-	-C¸-	notes
1238	*mit 'we'	*me id.	m/m	i/e	(t/Ø)		
1253	*mol- 'body, trunk'	**mVl(k/j)V					× U
1267	*mon- 'say'	**mVnV-					×
1302	*muɣ- 'row of long hills'	*mäki	m/m	ä/u	ɣ/k		?
1321	*muntə- 'carry, drag (away)'	? *mentä- 'miss'	m/m	e/u	n/n	t/t	× ? U S
1337	*ńä- / *ńaj 'female in-law'	? *nVx/ji 'woman'	ń/n	a/V	j/x,j		×
1366	*ńan- 'big, great'	**nVńćV					× ? U
1375	*ńär 'bare patch on fur'	**ńarV					×
1401	*ńel- 'lick'	*ńola-	ń/ń	e/o	l/l		
1406	*ńelpə- 'shave, skin, cut hair'	*ńülki- 'flay'[22]	ń/ń	e/ü	l/l	(p/k)	M
1409	? *ńēmə 'hare'	*ńoma	ń/ń	ē/o	m/m		
1439	*ńiɣ-/*ńiŋk- 'bend, stoop'	**ńikV-					× U
1480	*noɣ- 'wait for, guard'	*ńoxi- 'follow, chase'	n/ń	o/o	ɣ/x		?
1490	*nol 'poplar, willow'	**ńulkV					×
1493	*ńöm- 'press, squeeze'	**ńVmV-					× U
1515	*noqsə 'sable'	*ńukśi 'marten'	n/ń	u/o	q/k	s/ś	
1525	*ńoro- 'moss; bog'	*ńi̯ri 'wet, sticky substance; bog'	ń/ń	o/i̯	r/r		
1532	*ńū 'name'	*nimi	ń/n	i/ū	m/Ø		
1539	*ńūjə- 'walk staggering'	**n/ńVjV-					× ? U
1552	*n/ńuŋn- 'dream'	? *ńuŋV-	n,ń/ń	u/u	ŋ/ŋ	n/Ø	×
1576	*ō- 'scoop up, ladle	*ammV- id.		ō/a	Ø/m		
1625	*olo- 'steal'	*sala- id.	Ø/s	o/a	l/l		
1643	*omo- 'good, nice, healthy'	**oma 'own; property'					× ?
1653	*oŋ- 'interval, space'	*oŋti 'hole in a tree'		o/o	ŋ/ŋ	Ø/t	?
1685	*onučə 'quill-back fish'	? *oŋčV 'sheefish'		o/o	n/ŋ	č/č	× U
1723	*pač- 'go here and there'	**pačkV 'through'					× ? U

entry	PYuk	PU	C-	V	-C$_1$-	-C$_2$-	notes
1749	*para 'basis, essence'	*pa/or(w)V 'raft'	p/p	a/a,o	r/r	Ø/Ø,w	? U S
1758	*pē 'mountain, rock, stone'	**pije 'stone, flint'					× U
1759	*peč- 'run, trot, gallop'	**pučV- 'run, escape'					× U
1762	*peče- 'throw'	? *pi/ečV- 'separate, come off'	p/p	e/i,e	č/č		U S
1770	*pekč- 'leg muscles'	*počka 'shank'[23]	p/p	e/o	k/k	č/č	U
1772	*pel- 'old man, husband, bridegroom'	*pälä 'half, side'	p/p	e/ä	l/l		
1785	*pe/i(j)nć̮ə 'shoulder blade'	*puńćV 'knee'	p/p	e,i/u	n/ń	ć̮/ć	U
1794	*pere- 'aloof, aside'	*pärtä 'board'	p/p	e/e,ä	r/r	Ø/t	S
1830	*pöɣ- 'run, jump'	*pukta- 'run'	p/p	ö/u	ɣ/k	Ø/t	
1837	*poj- 'white'	**päji-					× ? U
1851	*poliń 'many'	**paljV					× ? U
1861	*pö/eń- 'put, leave, abandon'	*pi̯ni- 'put'	p/p	ö,e/i̯	ń/n		
1866	*poŋčuwə 'capercaillie'	*püŋi	p/p	o/ü	ŋ/ŋ	č/Ø	? M
1911	*puδe 'on, on top of'	*pidi 'high, long'	p/p	u/i	δ/d		
1917	*puj- 'blow'	*puwa-	p/p	u/u	j/w		
1938	*pun- 'tell, narrate'	*puna- 'weave'	p/p	u/u	n/n		? S
1948	*punkə 'hill, hummock'	**pu/oŋka					× ?
1964	*qa-, *qo- 'wh-'	*ku/o-	q/k	a,o/ u,o			
1982	*qal- 'bark, scales'	*kala	q/k	a/a	l/l		? S
2000	*qanć̮- cold, frost	**konta					× ? U
2018	*qār / *qajr skin	**kori					×
2050	*qol- 'sound, noise'	*kuwli- 'hear'	q/k	o/u	Ø/w	l/l	S
2091	*qoso ? 'clay'	**kVčV sand					× ?
2101	*q̮ij 'stone'	*kiwi	q/k	i̯/i	j/w		?
2118	*sā- 'tree, wood, stick'	*śi̯li- 'elm'	s/ś	ā/i̯	Ø/l		S
2150	*sapa- 'strike, hit'	**ćappi-					× ? U
2169	*sas- 'kind of trap'	**ćäćä					× U
2264	*sö/ej- 'small stone, pebble	**śojwa 'clay'					× ?

entry	PYuk	PU	C-	V	-C$_{1}$-	-C$_{2}$-	notes
2270	*sö/eĭ- 'beat, break'	? *śi̯li- 'cut, split'	s/ś	ö,e/i̯	ĭ/l		U
2273	*solijə 'intestine, gut'	*śola	s/ś	o/o	l/l		
2280	*so/aĭqə 'loon'	*śod/ďka 'goldeneye'	s/ś	o,a/o	ĭ/ď,d	q/k	
2366	*ta- there	*ta-	t/t	a/a			
2390	*tē- 'give, show'	*toxi- 'bring'	t/t	ē/o	Ø/x		?
2401	*tent- 'wealth'	? *tenä 'price'	t/t	e/e	n/n	(t/Ø)	?
2410	*tət 'thou'	*tinä / *tun	t/t	ə/i,u	(t/n)		
2411	*ti 'this'	*tä/e/i	t/t	i/ä,e,i			
2423	*tit 'you pl.'	*te	t/t	i/e	(t/Ø)		
2470	*tu- 'this'	*to- 'that'	t/t	u/o			
2486	*tur- 'offend, persecute'	*tora 'fight'	t/t	u/o	r/r		?
2568	*wača-/*wočo- 'open mouth'	*woča 'fence, weir'	w/w	a,o/o	č/č		S
2578	*wāĭ 'near'	**welji 'brother'					× U S
2579	*wa/ol- 'shaman; conjure'	*wala 'word, oath, song'	w/w	a,o/a	l/l		
2599	*weɣ- 'lead, carry'	*wixi- 'take'	w/w	e/i	ɣ/x		
2603	*wele- 'carry'	*wolka 'shoulder'	w/w	e/o	l/l	Ø/k	?
2607	*wentə- 'lay out, stretch out'	*weni- 'stretch'	w/w	e/e	n/n	(t/Ø)	
2618	*wonč- 'thin root'	*wanča(w) 'root'	w/w	o/a	n/n	č/č	
2632	*i̯čə- 'see, look, watch'	*woča- 'wait'	Ø/w	i̯/o	č/č		
2638	*i̯mo- 'get into a boat'	*amV- 'sit'		i̯/a	m/m		× ?

Notes

16. According to HDY *-n- "is probably a pronominal suffix".
17. Cf. PU *ä/e-lä- (negative imperative substem); HDY erroneously speaks of a Uralic "negative particle".
18. Attested in YukT e-diŋ 'this' < *en-tiŋ; according to Nikolaeva, the nasal *-n- "is probably a pronominal suffix".
19. HDY suggests morphological reanalysis: *kĕl > kē-l.
20. The Uralic verb could be semantically better compared to PYuk *kile- 'wade'; cf. 819.
21. The Yukaghir word could be better compared to PU *lonśa 'soft, mild'.
22. HDY: "the comparison [...] may be valid if *-pə- in Yukaghir is a derivational suffix".
23. Note the assumed metathesis.

Appendix B: Analyses of individual Uralic-Yukaghir etymologies

This appendix presents critical notes on individual Uralic-Yukaghir comparisons presented in HDY and Piispanen (2013). The numbering of the etymologies refers to the entries in HDY. In each case a reference to UEW is also provided, where the Uralic primary data can be located.

139: *apV 'elder sister' (UEW 15). – Komi *ob* 'paternal aunt' cannot belong to this etymology due to its voiced stop *b* (< *mp). The remaining Siberian cognates (PKh *opī, PMs *ūp, PSam *apå) are probably related via borrowing, because the vowel correspondences are irregular. The similarity of these words to PYuk *awa- 'elder, elder sister' (HDY 115) is intriguing, but genetic cognation is out of the question due to the irregularities on the Uralic side. Piispanen (2003: 182–183) speculates on possible alternative connections of these words with PU *i̯ppi 'father-in-law' (UEW 14: *appe) and PYuk *epē 'grandmother, father's older sister' (HDY 482), which only makes the etymology more obscure.

221: **ćaka 'thin ice' (UEW 28). – This is a completely arbitrary reconstruction: the vowel correspondences are irregular, the Khanty and Mansi initial consonants (PKh *ć-, PMs *s-) do not match each other, the purported Khanty cognate shows an incompatible consonant cluster *ŋk (cf. KhN *śuŋχ, śoŋχ* 'ice floes' < PKh *ćaŋk), and Hungarian shows irregular variation of the initial consonant (*zaj ~ szaj ~ saj* 'ice drift; thin ice on water').

284: **či/üŋV 'mist, smoke' (UEW 59). – Based on PPerm *čə̮ŋ 'smoke', PKh *čə̄ɣ and PMs *šĭŋkʷ 'mist'; the vowel correspondence is irregular and PKh *ɣ (instead of *ŋk) is quite unexpected. One could perhaps dismiss the Khanty form and venture the speculative reconstruction ?*čäŋi on the basis of Mansi and Permic, but the vowel correspondence PPerm *ĭ ~ PMs *ī is anomalous.

313: **čama 'straight, upright' (UEW 52). – Based on Fi *hama* (an intensifying attribute that expresses remoteness: e. g., *hama tulevaisuus* 'the remote future', *hamaan loppuun* 'until the very end'), PKh *čə̮mā 'even', PMs *šamā 'straight, upright'. The vowel correspondences are irregular.

329: **ćarV 'coarse' (UEW 30). – Based on PSaa *čār(r)ēs 'coarse (of wool), stiff (of hair)' and PPerm *ćuri̯t 'hard, strong, stale', but the assumed Saami vowel development *a > *ā (instead of expected *uo) is irregular. SlkTa *šara* 'strong' is certainly not cognate because of its incompatible sibilant *š-*.

362: **ćuppV 'tip', **ćuppa 'narrow' (UEW 44). – Both reconstructions are considered uncertain by UEW. The former is based on SaaL *tjuhppa* 'tip (e. g. of a cap)', Fi *suippu* 'tip', Komi *ćup* '(woman's) breast', and Hung *csúp* 'tip, peak', the latter on SaaN *čohppi* 'foot sack on a skin rug', Fi *suppea*, Komi *śopi̯d* 'narrow', and dialectal Hung *szupolya orrú* 'stubby-nosed'. Both sets show irregular vowel correspondences, and most of the words appear to have sound-symbolic characteristics.

403: **äćä ‘father’ (UEW 22). – UEW bases this reconstruction West Saami *äččē, PKh *äćī, PMs *äćī, NenT *ŋaće?*, En *ača?* ‘father!’. The Samoyed forms are phonologically completely incompatible (NenT *-će-* < *-ʔkä-), and moreover dictionaries describe them as child language words. West Saami *äččē, in turn, seems to be an irregular variant of the Proto-Saami word for ‘father’, which appears in somewhat different shapes in East Saami: SaaI *eeči* (< *eačē), SaaSk *ee´čč* (< *ičē), SaaK *â´ǯǯ* (< *ęčē) ‘father’. This is traditionally derived from PU *i/ećä ‘father’ (UEW: 78; Sammallahti 1988: 541).

It would, in fact, make much more sense to compare YukK *ečē* ‘father’ to the Uralic words derived from *i/ećä (UEW 78) than to those cited under **äćä (UEW 22), as the latter is certainly an invalid cognate set. But even the former cognate set exhibits notable phonological irregularities. In Finnic and Saami, there is oscillation between *i- and *e- (Fi *isä*, SaaK *â´ǯǯ* ‘father’ < *ićä vs. SaaI *eeči*, Old Võro *jedzä* < *ećä). Many of the proposed cognates are phonologically even more obscure: cf. MdM *ośä* ‘paternal uncle (older than father)’ (unexplained back vowel *o*-), Hung *ős* ‘ancestor’ (unexplained labial vowel *ő*-), Proto-Samoyed *äjsä ‘father’ (unexplained cluster *-js-). Sammallahti (1988: 541) has not even included the Samoyed words in this cognate set. Koivulehto (2001) has argued that the word is a loan from Proto-Aryan *iśća- > Sanskrit *īśá-* ‘ruler, master, lord; husband’.

449: **simV ‘black / rust’ (UEW 758). – Only attested in two neighbouring branches: PMari *simə ‘black’ and PPerm *sĭm ‘rust; dark’. Borrowing is probable, as the vowel correspondence is irregular.

467: **enä ‘mother’ (UEW 624). – Based on PSaa *eannē ‘mother’ and Komi *eń*, *iń* ‘female’; Vote *enne* ‘mother’ and Udmurt *-in* in *ķilćin* (an epithet of the supreme deity Inmar) are suggested as further uncertain cognates. The Komi and Saami nasals do not match, and also the vowel correspondence is irregular.

470: **se/äŋkV ‘upper arm’ (UEW 439: uncertain). – Based on PKh *ʟiŋkər ‘upper arm, shoulder’ and NenT *ťaŋkadᵊ* ‘upper arm’ (< *taŋkåtə). Due to the irregular vowel correspondence and attestation in only two neighboring languages, this cannot be a Proto-Uralic item.

620: **juwe ‘tree / pine’ (UEW 107). – The word is found only in Siberian branches: PKh *jūɣ, PMs *jīw ‘tree’, PSam *ję(w) ‘pine’. The vowel correspondences are irregular; hence, borrowing may be involved. Neither the meaning ‘pine’ nor ‘tree’ shows a very good match with YukT *jā* ‘birch’.

671: **jelä ‘light / sun / day’ (UEW 96–97: uncertain). – Based on PSaa *jealękkęs ‘cloudless weather’ and PSam *jalä ‘day’, which show an irregular vowel correspondence. Moreover, the comparison to YukK *jelõdə* ‘sun’ is problematic, as the word seems to be related to YukK *jēlə-* ‘boil up, get cooked’.

691: **jäje ‘belt’ (UEW 90). – An erroneous reconstruction based on PPerm *jį and PSam *jiə ~ *niə ‘belt’. Both Janhunen (1981: 260) and Sammallahti (1988: 536) match the Samoyed item with SaaN *avvi*, Fi *vyö* and Hung *öv* ‘belt’ instead, and the protoform can be reconstructed as PU *üwä (Aikio 2012: 230). PSam *n- and *j- are secondary prothetic consonants.

697: **jorV- 'roll' (UEW 102: uncertain), **jorkV- 'turn, wind, roll' (UEW 102). – Two Uralic reconstructions are cited in this entry in HDY. The first reconstruction **jorV- is based on PSaa *jorę- 'spin, go round, roll' and Hung *jár* 'goes (about), runs', and it is clearly erroneous; PSaa *o is the regular reflex of PU *u. However, PSaa *jorę- is of Uralic origin after all: it reflects PU *juri- and is cognate with Udm *jįromį-* 'go astray, lose one's way', PKh *jorəɣl-*, PMs *jårəɣl-* 'forget' and PSam *jürə-* 'get lost; forget' (Aikio 2002: 46–48; cf. UEW: 108). The second reconstruction *jorkV- is based on PSaa *jorkō- 'turn (over, inside out, etc.)' and PKh *jowər- 'get entangled'. The vowel correspondence is not regular, and the Saami word is instead an obscured consonant-stem derivative of *jorę- 'spin, go round' (Aikio 2002: 47). The proper PU reconstruction is thus *juri- 'spin, go round; go astray, get lost', which is both semantically and formally poorly compatible with YukK *jodo-* 'tie, bind', *jodul* 'winding', *jodutə-* 'wind, twist'. Piispanen (2013: 188–189) presents a different etymology: he compares the Yukaghir root to PU **jutta- 'bind' (UEW: 106). The Uralic reconstruction cannot be accepted, however, because the suggested cognates (Komi *jit-*, Udm *itį-* 'add, put together, sew together', NenT *juťe-* 'sew together') show entirely irregular sound correspondences.

768: ? *ko/ulV 'hole' (UEW 174). – A questionable reconstruction based on SaaL *gållo* 'crack, cleft', Fi *kolo* 'small hole, crack', Udm *kwaldį-* 'split (intr.)', Komi *kolas*, PKh *kaḷ*, PMs *kal* 'space (between), crack', Hung *halok*, *halk*, *hajk*, *halyk*, etc. 'cut made in a tree (in order to cut it down)'. The vowel correspondences are not altogether regular, and at least the Hungarian cognate is doubtful due to the extensive irregular variation in dialect forms.

778: *kälä- 'wade' (UEW 133–134). – The meaning attested in most Uralic languages is 'wade'. In Ugric this shifted to 'land, go ashore', and further to 'arise, get up'. The earlier meaning can still be traced in old Hungarian *kelet* 'ford'. None of the meanings in Uralic show a good match with YukK, T *kel-* 'come'.

781: **kVlV 'intestinal worm, tapeworm' (UEW 227). – UEW cites cognates from Permic (Komi *kol*, Udm *kęl*), Khanty (KhE *kuḷ*) and Samoyed (NenT *χali*, SlkTa *qō*). The vowel correspondences between these words are completely irregular, so the etymology is not plausible. Moreover, the NenT and Slk items cannot be related to each other due to the irregular correspondence *l* ~ Ø.

806: **käwe- 'go' (UEW 654: uncertain). – Based on PFi *käve- 'go, walk, visit, happen' and PMari *käje- 'go, go away'. The vowel correspondence is irregular, and moreover, PFi *käve- has been convincingly explained as a loan from Germanic *skǣwia- 'go, walk' (LÄGLOS s. v. *käydä*).

819: *kulki- 'go / flow' (UEW 198). – The attested Uralic meanings oscillate between 'run, flow, leak (of water)' and 'go, go on, wander, roam', and hence the comparison to YukK *kile-*, *kil-* 'wade' is not semantically altogether clear (but cf. YukK *kildībō* 'vagrant'). Nikolaeva incorrectly reconstructs the meaning of the Uralic verb as 'move, wade'; the latter meaning is not found in Uralic at all. YukK *kil(e)-* 'wade' would have a much more natural point of comparison in PU *kälä- 'wade', which Nikolaeva matches with PYuk *kel- 'come' instead (see etymology 778).

839: *kaća 'end, tip' (UEW 110: uncertain). – The erroneous form **kača is given in HDY. The reconstruction *kaća might be valid on the Finno-Saamic level (cf. Fi *kasa*, Võro *kadsa* 'corner (e. g. on the back of an axe blade)', SaaN *geahči* 'end, tip'), but this presupposes an irregular vowel development in Saami. Due to the limited distribution this is unlikely to be a Uralic word. The inclusion of Hung *hegy* 'mountain' in this etymology is unacceptable: the development *ć > *gy* has no plausible parallels, and the front vowel is not regular either. Koivulehto (1991: 23–25) considers Finno-Saamic *kaća a loan from Indo-European *h_2aḱ-ya- (> Germanic *agja- > English *edge*, German *Ecke* 'corner').

860: **kokka 'protruding part, hook' (UEW 171–172: uncertain). – Based on Fi *kokka* 'keel (of a boat); protruding part', SaaN *goahkki* 'wooden hoe' and PKh *kāɣəp 'wooden hook (for fishing pike)'. The Saami and Finnish items may be borrowings from Germanic *χōka- 'hook'. Moreover, the Saami item shows a semantically much better match with Fi *kuokka* 'hoe', which cannot be a Uralic word for phonotactic reasons (a long vowel *uo* < *ō before a geminate stop). The equation with PKh *kāɣəp is unlikely also because *-əp remains unaccounted for; it could be an instrument suffix, but in this case the underlying root *kāɣ- would have to be a verb. Even if these fatal problems were overlooked, the suggested comparison of the Uralic words to YukK *kȭkə* 'head (of a fish or an animal)' would still be completely unjustifiable for semantic reasons alone. Piispanen (2013: 185) suggests an alternative comparison to YukK *köknə ~ kökönək* 'hook for hanging a kettle over the fire', which would be semantically better, but HDY (861) considers the Yukaghir word a Tungusic loan (cf. Yakut *köχö* 'hook' < *goko), and also the problems in the Uralic data leave no alternative but to reject the comparison.

878: ? *kV(n)čV 'tapeworm' (UEW 205). – Based on PMari *kučə, PKh *kūn̮č and PMs *kunš 'tapeworm'. Mari points to *č, Khanty and Mansi to the cluster *nč; the vowel correspondence is also irregular. HDY cites an erroneous Uralic reconstruction *kuńćV.

921: **kumV 'thin snow' (UEW 204). – Based on dialectal Udm *kim* 'thin new snow; rime', Hung *hó* 'snow', NenT *xəwˀʔ* 'thin but hard snow crust' and Kam *kamo* 'snow crust'. The Uralic etymology is incorrect: the Udmurt item is actually the same word as *kin ~ kim* 'cold, frost' (< PPerm *kǐnm < PU *külmä; UEW 663), NenT *χəwˀʔ* is perhaps a derivative of *χəwə-* 'fall' (< PU *kuma- 'fall over'; cf. UEW 201–202), and Kam *kamo*, in turn, derives from PSam *kampV 'snow crust; spring' (Janhunen 1977: 64).

953: *kurV- 'tie together, fasten together' (UEW 215). – Attested in Finno-Saamic only: Fi *kuro-* 'gather, draw together (by a thread)', SaaN *gorra-* 'bind (without knots)'. PSam *kurå- 'bind' must be of different origin, as its vowels do not correspond regularly to the Finno-Saamic *kurV-.

955: ? *ku/irki 'crane' (UEW 128). – The inclusion of PSam *kərö is considered uncertain in UEW. The word shows somewhat irregular vowel correspondences: PSaa *kuorkę and PMd *kargə presuppose PU *kirki, whereas PFi *kurki and PSam *kərö point to PU *kurki. The word is perhaps onomatopoetic.

983: ? *d/lä/epp/pdä ‘spleen’ (UEW 242). – This is a phonologically highly problematic etymology. Doubtlessly related are PMari *lep, PPerm *lop and Hung *lép* ‘spleen’, and they could be straightforwardly derived from a proto-form *leppä. Kh Sur *ɻăpət-ne*, Kaz *ɻepət-nɛ* ‘spleen’, which UEW cites as an uncertain cognate, is unlikely to belong here, however: even though the semantic development remains unclear, the word looks like a mere compound with the literal meaning ‘limp woman’ (note that Sur *ɻăpət-ne* shows an irregular oblique stem *ɻăpət-niŋ-*, exactly matching the irregularly declined *ne* : *niŋ-* ‘woman’). On the other hand, if PSaa *ϑāpδē ‘spleen’ belongs in this cognate set, some kind of more complex proto-form must be postulated. Sammallahti (1988: 543) proposes PU *däpdä / *däppä, but there are two problems with this solution: the etymon would be the only example of Uralic word-initial *d-, and moreover the medial *-d- in the cluster *-pd- would show no reflex in the other branches. Hence, it remains very uncertain whether the Saami word even belongs in the cognate set. Nikolaeva (HDY 983) suggests the Uralic reconstruction *δäδ̓wä (= *ď̓äď̓wä), for which there is no justification whatsoever in the Uralic data. Regardless of how the Uralic word is exactly reconstructed, there is no regular correspondence or even superficial resemblance between the Uralic forms and PYuk *ľäjə ‘spleen’.

992: *l̮inti ‘lowland’ (UEW 235: *lamte). – This word is reliably attested in Finnic (Fi dial. *lansi* ‘low; lowland’), MariW *landaka* ‘small valley, depression (esp. in a forest)’, PPerm *lŭd ‘meadow, pasture’, and Ngan *l̮intə* ‘plain, valley’ (the Ngan cognate is discussed by Aikio 2014b: 86). The inclusion of Saami *luomtV- ‘crouch down’ and Mordvin *lańď a- ‘sit down’ (listed as uncertain in UEW) is unlikely for semantic reasons and because of the non-matching cluster *-mt- in Saami: MariW *landaka* and Ngan *l̮intə* can only reflect PU *-nt-, not *-mt-. Contrary to UEW, PSam *ləmto ‘low’ cannot belong in this cognate set due their irregular vowel *-ə- and the non-matching *-mt-. The Finnic and Permic words have also been considered loans from Indo-European *lomd^{h}o- > Germanic *landa- ‘land’ (Koivulehto 2003: 287), but this cannot be maintained due to the recent discovery of a regular cognate in Nganasan.

997: **lä(n)śV- ‘weak, limp’ (UEW 240: uncertain). – Based on MariW *l̈änzərä* ‘worn (of clothes); weak’, Komi *l̮i̮ć̮id* ‘saggy, slack, loose’, and KhE *l̮äsək* ‘weak; loose’; the sound correspondences between these words are completely irregular. Instead of this very weak Uralic etymology, YukT *ladîdā* ‘slowly’, *ladînban-* ‘slow, calm’ (< PYuk *lanč̓in-) could be more plausibly compared to PU *lonśa ‘loose, soft, mild’, which is securely reconstructed on the basis of PSaa *loańčẹ̄tē ‘loose, slack’, PKh *l̮ańćəɣ ‘lukewarm’, PMs *lańćəŋ ‘soft, mild, warm’, and Hung *lágy* ‘soft, weak, gentle’ (UEW: 250–251; Sammallahti 1988: 545).

1016: **lV- ‘down’ (UEW 258: uncertain). – Based on just two forms: Hung *le* ‘down’ and MariW *ləwäl* ‘underside’, *ləwälnə*, *əlwälnə* ‘under’ (*-wäl* ‘side’). Only the segment *l-* matches, and the vowel cannot be reconstructed. Moreover, UEW presents the alternative and much more convincing suggestion that MariW *ləwäl-* was metathesized from *əlwäl-* << PMari *ül-pel- ‘underside’ (< PU *i̮la ‘under’ + *pälä ‘side’).

1022: **lewdä- ‘find’ (UEW 247: uncertain). – Based on just two forms: PFi *leütä- and Hung *lel* ‘find’. The Finnic verb is more probably a loan from Germanic *χleuta- > Old Norse *hljóta*, Old English *hléotan* ‘get, get by lot’, as argued by Schalin (2004).

1038: **rVppV- 'burst, rupture' (UEW 427: uncertain). Based on PSaa *rẹpẹ- 'open', PFi *repi- 'rip, tear', PMs *ript- 'decrease, disappear, be destroyed; maim, wound', and Hung *reped* 'cracks, bursts, splits'. The vowel correspondences are not regular, and Finnic and Saami point to an original single *-p- whereas Hungarian presupposes *-pp-. Moreover, there are no reliable examples of PU initial *r- (Sammallahti 1988: 482).

1040: **leppä 'alder' (UEW 689). – Only attested in the west: SaaN *leaibi*, Fi *leppä*, MdE *ľepe* 'alder'. The reconstruction *leppä is arbitrary, as the claimed cognates are phonologically incompatible: Saami presupposes *lejpä, Finnic points to *leppä, and Mordvin would reflect *lippä. The anomalous correspondences are evidently a result of parallel borrowings from Proto-Baltic *leipā- > Lithuanian *líepa* 'lime tree, linden' (cf. SSA s. v. *leppä*). The Baltic loan etymology already eliminates any possibility of finding a Yukaghir cognate for the word. Moreover, from a semantic perspective it is hardly reasonable to compare PYuk *lep(k)- 'blood' to a Uralic word for 'alder', despite the fact that words for 'alder' have been used as circumlocutions for 'blood' in Uralic. Piispanen (2013: 182) supports the etymology and refers to Fi *puna* 'red colour; blood', *punainen* 'red' which derive from PU *puna 'hair' (UEW 402). However, this does not serve as a parallel to the semantic shift 'alder' > 'blood': the semantic development of Fi *puna* has been 'hair' > 'appearance, color (of an animal's hair)' > 'reddish color' (cf. MdE, M *pona* 'hair, wool; appearance; color').

1045: **le/iśi- 'hull, defoliate' (UEW 246: uncertain). – Based on Fi *lese* 'bran', *lesi-* 'thresh' and Hung *liszt* 'flour', which are certainly not cognate due to the restricted distribution, the irregular vowel correspondence, and the agricultural semantics which instead suggest a later origin. It is entirely unclear why such a poorly grounded etymology should be further expanded with a semantically far-fetched comparison to YukT *leserke* '(torn) rags'.

1059: **lippV 'shovel' (UEW 690–691: uncertain). – Based on Fi *lippi*, *liippi* 'birch-bark ladle' and MdE *ľipiš*, *ľipuža* 'one of the boards between the charge threads of a loom'. SSA (s. v. *lippi*) rejects the comparison and analyzes the Finnish word as a derivative of a Finnic verb root *lippa- 'scoop, ladle, bail'.

1085: **lampa 'ski' (UEW 234: uncertain). – Based on SaaS *laabje* 'a type of short and broad ski', PKh *ļōmp 'skis', and NenT *lɜmpa* 'ski'. The Saami word shows a non-matching consonant cluster *-bj-* and the vowel combination *aa–e*, which never occurs in words of Uralic origin, so it obviously cannot have anything to do with the Khanty and Nenets forms. The latter two are certainly etymologically related, but as these are two neighboring Siberian languages, borrowing in one direction or the other must be involved, especially considering the irregular vowel correspondence. NenT *lɜmpa* could not even theoretically be a Proto-Uralic word because it lacks the regular sound change PU *l- > PSam *j-.

1141: ? *mVďV (UEW 279: *moľV / *moďV). – Based on MariE *moδo* 'blueberry', PPerm *muľį 'berry, nut', PKh *wir-miľ 'red currant' (*wir 'blood'), and Hung *meggy* 'cherry'. Even if the forms are cognate (which is far from certain), the phonological reconstruction remains highly unclear. At least the Permic and Mari words could be derived from *maď a. Sammallahti (1988: 545) excludes the Mari word and postulates the reconstruction

*meď i. The palatalized lateral *Ĺ in Khanty is problematic, as the regular reflex of PU *ď is PKh *j. The Hungarian geminate *-ggy* is obscure; also the front vowel *-e-* is irregular, but this might result from the influence of the following palatal consonant.

1208: *meni- 'go' (UEW 272). – The semantics of the compared forms differ considerably: Yukaghir 'jump' vs. Uralic 'go'.

1253: **mVl(k/j)V 'breast' (UEW 289–290). – Based on Mari *maləš* 'wooden lid on a beehive built in a hollow tree trunk', Udm *meļ'a* 'breast' and dialectal Hung *mál*, *máj*, *mály* 'peritoneum (of an animal); (obsol.) breast'. The meaning of the Mari word does not correspond well to the other forms, and the sound correspondence between Udmurt and Hungarian is irregular. Compare PU *mälki 'breast', which is securely reconstructed, and which Nikolaeva matches with YukK *melut* 'breast' (HDY 1188).

1267: **mVnV- 'say' (UEW 290–291: uncertain). – Based on SaaS *moene-* 'say, mention', Fi *manaa-* 'conjure, curse', MdE *muńa-* 'conjure', PMari *mana- 'say, utter', Hung *mond* 'says, utters', and PSam *må(n)- 'say'. This purported cognate set is ridden with phonological irregularities, and classified as highly uncertain in UEW; Sammallahti (1988) does not cite the etymology at all. SSA (s. v. *manata*) states that the proposed Saami, Mordvin and Mari cognates are rejectable on phonological grounds and also the comparison to Hungarian and Samoyed is highly uncertain. To this one can add that the vowel correspondence between Hung *mond* 'say' and Fi *manaa-* 'conjure' is irregular, and that the latter verb is obviously a loan from Old Swedish *mana* 'conjure'. SaaS *moene-* is a loan from a different Germanic verb, cf. Gothic *man* 'I think, I believe', *ga-man* 'I remember', German *mahnen* 'remind' (Aikio 2006b: 32–33).

1321: ? *mentä- 'miss' (UEW 272: uncertain). – Based on two forms only: PSaa *meantē- 'miss (the target), mistake one's way, make a mistake', KhE *mintəɣtə-* 'miss (the target)'. The Saami word has also been explained as a causative (*men-tä-) of PU *meni- 'go' (Sammallahti 1998: 254). Moreover, the Uralic forms show a poor semantic match with YukK *mudetədej-* 'drag further without stopping', *muddəjl* 'last (of a period of time)'.

1337: ? *nVx/ji 'woman' (UEW 297–298: *naje). – UEW reconstructs the form *naje on the basis of PFi *nainen 'woman', *nai- 'marry; have sex', PKh *nāj, PMs *nāj 'dame; fire'; however, the vowel correspondence is not regular. It is crucial to note that in the Finnic words *-i-* is not a part of the root: the correct morphological segmentation is *na-inen* 'woman', *na-i-* 'marry; have sex'. The root *na-* reflects *nā-, as seen in the derivative *naa-ras* 'female'; the long back vowel is not an expected reflex of earlier PU *-aj-. It should be noted that there are also several other similar words in the Uralic languages, most notably PMd *ńi, PKh *nēŋ, PMs *nīw, Hung *nő*, and PSam *nä 'woman, wife' (cf. UEW: 305). The interrelations between these words are not altogether clear, as the sound correspondences are irregular; at best, one could postulate a conjectural reconstruction *nVx/j/ŋi 'woman'. The reconstruction *näxi suggested by Janhunen (1981: 245–246) is arbitrary, as it is mainly based on just the Samoyed form.

1366: **nVńśV 'strong ?' (UEW 310: uncertain). – Based on Komi *naź* 'mean' and Hung *nagy* 'big'. Due to the scarcity of proposed cognates, the irregular vowel correspondence, and the semantic mismatch between the forms, the etymology cannot be accepted.

1375: **ńarV 'hairless skin' (UEW 313). – Based on PPerm *ńar 'soft leather, reindeer skin without fur', PKh *ńūr, PMs *ńur 'strap; hairless'. The vowel correspondence is irregular, which suggests borrowing. Sammallahti (1988: 546) reconstructs *ńori, but this is not supported by the Permic form.

1406: *ńülki- 'skin, flay' (UEW 319). – The comparison to Yukaghir is based on the assumption the *-pə- in PYuk *ńelpə- is a derivational suffix, but there seems to be no motive for such an analysis besides the Uralic-Yukaghir comparison itself.

1439: **ńiki- 'bend down' (UEW 317–318: uncertain). – Based on PSaa *ńe̮ke̮- and NenF *ńiχuw-* 'bend down, stoop down'. One would expect the sequence *-ki- to have become lost in Samoyed: cf. PU *koki- 'check' > PSam *ko- 'see, find' (UEW: 171; Aikio 2002: 26).

1480: *ńoxi- 'hunt, chase, pursue' (UEW 323: *ńoŋda-). – The reconstruction given in UEW and cited by Nikolaeva is clearly incorrect (cf. Janhunen 1981: 245; Sammallahti 1988: 539). The Uralic root can be reconstructed as *ńoxi-, and in most languages this was augmented with derivational suffixes: e. g., PFi *nou-ta- 'fetch', PKh *ńōɣ-əl-, PMs *ńi̮w-l-, NenT *ńo-da-* 'pursue'. The underived root is attested in SlkTa *ńo-* 'pursue'. None of the cognates show any evidence of *-ŋ- or *-d-. Considering the improved Uralic reconstruction *ńoxi-, Nikolaeva's cautious comparison to PYuk *noɣ- (> YukK *noudī-* 'be in wait for, be on guard, watch over', *nojdiďajə* 'guard') seems slightly better possible; but on the other hand, the Uralic item would compare equally well to PYuk *nuɣ- > YukK *nug-*, T *nug-*, *nū-* 'find; kill' (HDY 1533).

1490: **ńulkV 'fir' (UEW 327). – This Uralic etymology is phonologically very problematic. Regular reflexes of the form *ńulkV are found only in two neighboring branches: PMari *nŭlgə and PPerm *ńi̮l. The proposed cognates in Siberian branches (PKh *ńi̮l(əŋ)kī̮, PMs *ńal, SlkTa *ńulqi,* Kam *nolɣo*) are highly irregular, and Sammallahti (1988: 511) considers them loanwords.

1493: **ńVmV- 'press' (UEW 330: uncertain). – An implausible reconstruction based on MariW *nə̑mə̑rɣe-* 'be crushed', Komi *ńamḭlt-* 'press, squeeze' and Hung *nyom* 'presses; weighs'; the vowel correspondences are irregular.

1525: *ńi̮ri 'wet, moist; wet, sticky substance; bog' (UEW 324). – The Finnic and Samoyed cognates listed in UEW do not belong here; instead, NenT *ńer* 'sap; white of an egg' and SlkTy *ńər* 'semen' can be included in the cognate set (Aikio 2006a: 20–21). However, there is also another very similar Samoyed word, PSam *ńərV 'bog' (> En *noro*, Ngan *ńer^{u}a*, Slk *ńarə*). Nikolaeva also includes Uralic words for 'moss' in this set; UEW (325) treats these as separate, uncertain etymology. The NenT word *ńarco* 'moss' (~ En *naďuδo*, Ngan *ńorsu* < PSam *ńårso) cited by UEW in this connection shows a conspicuous resemblance to YukT *ńorďe* (< *ńorč̆ə) 'moss, lichen'.

1538: **n/ńVjV- 'stretch' (UEW: 309). – Based on Komi *ńojd-* 'get worn out, crumble, disintegrate', Udm *nuja-* 'stretch (intr.)', Hung *nyújt* 'stretches, extends (tr.)', *nyúlik* 'stretches, extends (intr.)', *nyúl* 'touches, lays hands on'. Even the Komi and Udmurt verbs do not seem to be cognate due to the irregular correspondence Komi *ń-* ~ Udm *n-*. The semantics of the Hungarian and Udmurt verbs match, but the initial nasals do

not. Even if the Uralic reconstruction was valid, there would still be no reason to compare it to an expressive verb like YukT *ńūjaɣa-* 'walk staggering and moving hands'.

1552: ? *ńuŋV- 'rest'. – Based on MdM *nuva-* 'nod, nap, drowse', KhN (obsolete) *ńoɣol-* 'sleep' and Hung *nyugszik* 'lies, rests; sets (of the sun)'. Hungarian shows the regular change *-ŋ- > *-ŋk- > -g-, whereas Kh *ɣ* is an irregular reflex of *ŋ.

1643: **oma 'own; property' (UEW 717: uncertain). – Bases on SaaN *oapmi* 'something that belongs to someone, property', Fi *oma* 'own', and Udm *umoj* 'good'. However, Fi *oma* probably consists of *o- 'be' (< PU *wo-) and the nominalizer *-ma, as cautiously suggested by both UEW and SSA (s. v. *oma*). The Saami word shows a narrow distribution and is very probably a Finnic loan. If the morphological analysis of the Finnish word is correct, then Udm *umoj* must be of different origin, and the semantic match between 'own' and 'good' is not very convincing in any case.

1685: ? *oŋčV 'nelma, sheefish' (UEW 339). – An uncertain reconstruction based on Komi *už*, PKh *ūnč, PMs *ūnš, PSam ?*åŋčV 'nelma, sheefish'. The vowel correspondences are slightly irregular, so this might be a Wanderwort. Note also old Ngan *jintü* and EnT *jiddu* 'nelma, sheefish', which UEW also cites as cognate, even though the initial *ji-* is completely irregular.

1723: **pačkV- 'through / go through' (UEW 345–346). – Based on MdE, M *pačk* 'through' and SlkTy *põžə-* 'go through; stick through', plus a few other phonologically and semantically highly problematic forms that are judged uncertain in UEW (see etymology 1759 for discussion). While the Md and Slk forms could theoretically be related, this is not probable due to the very limited distribution.

1749: ?*pa/orV / ?*pa/or(V)wV 'raft, platform' (UEW 356: uncertain). – A phonologically problematic reconstruction based on PSaa *poarēvē 'small raft', PFi *parvi 'loft, raft', PPerm *pŭr, PKh *pi̯rā, PMs *pārā 'raft', PSam *pårä 'storage platform'. While the words certainly seem related, due to the irregular vowel correspondences this may be a Wanderwort. UEW also connects here the homonymous PFi *parvi 'flock' and PKh *pi̯rā 'flock, herd', and proposes an original meaning 'heap, pile' – this would have developed into 'flock, herd' on the one hand, and 'heap of logs' (> 'logs attached together, raft') on the other. Regardless of whether this hypothesis is correct or not, the comparison to YukT *para* 'basis, essence, origin; bottom, end' lacks semantic justification.

1758: **piji 'stone' (UEW 378: uncertain). – Based on Fi *pii* 'flint' and PSam *pəj 'stone, rock'. Both are short forms, and the correspondence Fi *-ii* ~ PSam *-əj is not regular.

1759: **pučV- 'run away' (UEW 399; cf. 345). – Based on two forms only: Komi *pi̯šji̯-* 'run, run away, flee' and PMs *pūš- 'run away, flee'. The sound correspondence is not regular; the expected reflex of PU *č is Komi *ž* or *š*, and the vowels do not match either. Furthermore, in another entry on UEW (345–346) further compares the same Komi and Mansi words to Fi *pahki* 'straight at, colliding with, bumping against', MdE, M *pačk-* 'through' and SlkTy *põžə-* 'go through; stick through', and proposes the uncertain reconstruction *pačkV-; this is neither semantically nor phonologically feasible. See also etymology 1723.

1762: ? *pi/ečV- 'come off, come loose, open' (UEW 358–359: uncertain). – This stem is reliably attested in Ugric languages only (PKh *pičā̈ɣl- 'untie, disentangle, take apart', PMs *pīšt- 'untie, unbind', Hung *feslik* 'comes unstitched, bursts'), and its exact phonological reconstruction is problematic. The proposed Saami cognate, SaaS *bïehtsegidh* 'grow; come out (of leaves); expand', would presuppose a PU form *päčči-ŋki-. Also UEW regards the equation between Saami and Ugric as highly uncertain, and furthermore the Uralic words show a poor semantic correspondence to YukK *peššej*- and *pejžī*- 'throw'.

1770: *počka 'shank' (UEW 389: uncertain). – Only found in PFi *potka 'shank' and PSaa *poackē 'ankle'; the other cognates proposed by UEW must be rejected. The consonant cluster in PMd *pukšə 'thick meat, thigh, buttock' cannot reflect *čk; instead, the Mordvin word can be explained as a borrowing from Proto-Aryan *pakša- (> Sanskrit *pakṣá*- 'wing, flank, side'). Slk (upper Ob) *paqtur* 'calf (of the leg)' cannot have anything to do with the Finnic and Saami words either, as the cluster -*qt*- does not match, and the vowel correspondence is not regular either.

1785: *punśV- 'kneecap' (UEW 403: uncertain). – Despite minor irregularities, this Uralic cognate set seems acceptable. UEW lists cognates from Saami and Samoyed only (SaaN *bužes-dákti*, NenT *punco* 'kneecap of a reindeer'), but the reconstruction receives further confirmation from the Permic cognates discover by Helismki (1996: 63): Komi *piǯe̮s*, Udm *pi̮d́es*, *pi̮ǯes* 'knee'.

1794: *pärtä 'board' (UEW 374: *pertV / *pärtV 'side, edge'). – UEW cites PPerm *bird 'wall', PKh *pärt and PMs *pā̈rt 'board' as cognates. Contrary to UEW, also Fi *parsi* 'beam (in a drying barn); floorboard' belongs in this cognate set (Sammallahti 1988: 548); it has undergone the same vowel development as e. g. Fi *sappi* 'bile' (< *säppä) and *talvi* 'winter' (< *tälwä). The original meaning of the Uralic word seems to be 'board' rather than 'side, edge'; the Permic cognates include postpositions with a meaning close to Yukaghir (cf. Komi *berdi̮n*, Udm *bordi̮n* 'with, at', etc.), but these are clearly the result of later semantic abstraction – formally these postpositions are local case forms of Komi *berd*, Udm *bord* 'wall'. As 'board' (or perhaps 'wall' or the like) must be reconstructed as the earliest meaning in Uralic, the comparison to YukT *peren* 'aloof' and *peredîe* 'a little aside' is semantically unjustified. Moreover, the Uralic word family has been proposed to be a loan from Indo-European *bʰr̥dʰo- > Germanic *burda- 'board' (Koivulehto 1999: 159).

1837: **päjV- 'white; shine' (UEW 360: uncertain). – An implausible reconstruction based on SaaN *beadju*- 'shine white (e. g., of someone who is wearing a white parka)' and Hung *fehér* 'white'. The Saami word shows a highly specific meaning, attestations are very limited, and the compared forms are short; the matching parts are only *beadj*- (< *peaj-) and Hung *fe*-.

1851: **paljV- 'many' (UEW 350: uncertain). – Based on Fi *paljo* 'a large amount', *paljon* 'much', MariW *pülä* 'quite much', PMs pā̈l' 'dense, leafy', NenT *pal'ᵊʔ* 'dense', En *fod'eme* 'become dense'. The vowel correspondences between all the forms are quite irregular, and the Nen and En forms go back to PSam *pə̈lti (cf. Mat *häldi* 'dense') which has an incompatible consonant cluster. Saarikivi (2009: 146–147) has recently argued that Fi *paljo(n)* is a loan from Slavic **bol-jьjь* (Russian *более* 'more', cf. also *большой* 'big').

1917: *puwa- ‘blow’ (UEW 411: *puwV-). – The Uralic reconstruction is based on PMd *puva-, PMari *pue-, PKh *puw-, Hung *fúj*, and PSam *puə- ‘blow’. While the etymological comparison is probably correct, it seems evident that the Uralic verb is ultimately onomatopoetic in origin. As phonologically similar words for ‘blowing’ are found in many of the world’s languages, the comparison to PYuk *puj- ‘blow’ is not very compelling.

1938: *puna- ‘spin, weave, plait’ (UEW 402). – All the Uralic words show concrete meanings ‘weave’, ‘spin’ or ‘plait’; the comparison to YukK *pundu-* ‘tell, narrate’ is semantically far-fetched.

1948: **pu/oŋka ‘lump, bump’ (UEW 404). – Based on SaaN *buggi* ‘bump, lump, hump, swollen or expanded object’, *boggi* ‘short and fat person, animal or thing’, Fi *punka* ‘small and fat person’, MdE *pokoľ* ‘lump, piece’, Komi *bugiľ* ‘eyeball’, Udm *pog* ‘lump’, KhE *puŋkəl̮* ‘snow stuck on skis’, *puŋkət* ‘boil, ulcer’, KhS *poŋχət* ‘gnarl, burl’, and Hung *bog* ‘knot’. The vowel correspondences are irregular, and Md *-k-* would presuppose PU *-kk-, not *-ŋk-. The semantic correspondences are not very satisfying either. Moreover, some of these words are clearly sound-symbolic, and as such there is little reason to compare them to YukK *punkə* ‘hill’, T *punke* ‘hummock’, which contain the unusual cluster *-nk-* (not *-ŋk-*!).

1982: *kala ‘fish’ (UEW 119). – The comparison of YukT *qal-dawe* ‘(tree) bark; fish scales’ to PU *kala ‘fish’ is not semantically feasible.

2000: **konta ‘cold, frost’ (UEW 176–177: uncertain). – Based on SaaN *goattis* ‘stiff, inflexible’, Fi *kontta* ‘stiffness’, and NenT *xəńˀʔ* ‘light night-frost in autumn’, En *koddi-*, Ngan *kəntʲi-*, SlkTa *qantei-* ‘freeze’. The sound correspondences are highly irregular. Fi *-ntt-* disproves the etymology, as three-consonant clusters do not occur in inherited Uralic vocabulary; the word is thus obviously a Finnic innovation. The Saami word is probably a borrowing from Finnic. The Samoyed word shows original front vocalism (PSam *kəntä-).

2018: **kore ‘bark, skin’ (UEW 184: uncertain). – A rejectable reconstruction based on Fi *kuori* ‘peel, skin, shell, bark, crust’, MdE *kaŕ* ‘bast shoe’, Komi *kʲɨrś* ‘tree bark’, KhS *χărə* ‘reddish layer on the inside of birch bark’, *χurəp* ‘crust (of bread); scab’, MsE *χorp* ‘crust’. The vowel correspondences between the forms are irregular, and some of the forms are arbitrarily segmented: Komi *-ś* and Khanty and Mansi *-p* are not accounted for. The sound correspondence between Fi *kuori* and Md *kaŕ* would be regular, though, but the semantic connection is not compelling. Even so, Fi *kuori* seems to derive from Proto-Uralic after all: its regular cognate is NenT *śar* ‘skin (under the hair); surface’ (< PU *kari; Aikio 2012: 233).

2050: *kuwli- ‘hear’ (UEW 197: *kule-). – The Uralic verbs mean ‘hear’ (and in some languages also ‘feel’), which does not match semantically very well with YukK *qolil* ‘sound, noise, tinkling’, *qolińī-* ‘make a noise’. Sammallahti’s reconstruction of a Uralic long vowel (*kuuli-) implies an earlier sequence of a vowel and a glide, perhaps *-uw- (Aikio 2002: 243). PSam *kåw ‘ear’, cited as uncertain in UEW, is unlikely to belong here due to phonological reasons.

2091: **kVčV 'sand' (UEW 226). – Based on Udm *gi̮ž* 'grain of sand', Komi *kęž* 'stony or gravelly place in river or on a river bank', and KhE *ki̮č* 'fine sand'. The vowel correspondences are irregular; the Khanty word may be a Permic loan.

2118: *śi̮li- 'elm' (UEW 458–459: *śala). – Basis on PMd *śeľəŋ, PMari *šolə and Hung *szil* 'elm'; contrary to UEW and Sammallahti (1988: 549), however, Fi *salava* 'crack willow' does not belong here; it is instead a borrowing from Germanic *salihō- > English *sallow* (cognate with Latin *salix* 'willow') (Koivulehto 2006). The equation of a Uralic word meaning 'elm' to YukK, T *sāl* 'tree, wood, stick' is semantically unconvincing, and moreover, the final *-l* in *sāl* is a suffix (cf. e. g. YukK *šān-pāj* 'fungus (on a tree)' and *šād-ājə* 'crooked knife for carving wood'); the comparison presupposes that this results from morphological reanalysis.

2150: **ćappV- 'hit' (UEW 29: uncertain). – Based on the following forms: PSaa *čuoppę- 'cut', Veps *čappa-* 'hit, thresh', PMd *ćapa- 'slap, clap', PPerm *ćapk- 'throw, hit, slap, clap', Hung *csap* 'strikes, slaps; throws, flings'. UEW considers the entire equation uncertain; Sammallahti (1988: 543) reconstructs *ćappi-, but considers only the Saami and Hungarian words as certain cognates. However, the development *ć > Hung *cs-* appears to be hypothetical, as convincing parallels are difficult to find. The rest of the forms are highly problematic. Veps *čappa-* and PMd *ćapa- are clearly onomatopoetic verbs due to their initial *č-*and *ć-, which have no regular Proto-Uralic source; cf. Mordvin *ćap* 'slap!' (an onomatopoetic word imitating a slapping sound). The Permic word shows the unusual cluster *-pk-, which also suggests onomatopoiesis.

2169: **ćäćä 'a kind of trap' (UEW 30–31: uncertain). – Based on SaaK *šie´šš*, MariE *čüčäš* 'a kind of bird trap', KhE *sesəɣ* 'trap (for birds or hares)'. The Saami sibilant *š* has no PU source and it only occurs in loanwords. The Mari and Khanty forms are phonologically incompatible, as neither the consonant nor the vowel correspondences are regular; moreover, the Mari word is perhaps a derivative of the verb *čüče-* 'make a hole'.

2264: **śojwa 'clay' (UEW 483). – Based on SaaK *ču´vj*, PPerm *śuj 'clay', Slk *süə 'mud, clay', Kam *se* 'clay'. The vowels do not match, and the correspondence between the Saami consonant cluster *-vj- and Samoyed Ø is highly problematic.

2270: ? *śi̮li- 'cut, split' (UEW 459–460: uncertain). – The reconstruction is based on PSaa *čuoli̮- 'chop (e. g. wood)', Fi (dialectal) *sali-* 'chop wood shingles' and Hung (dialectal) *szil* 'cuts, splits, carves'. The equation between Saami and Hungarian might be correct. Fi *sali-*, however, shows a very restricted dialect distribution and it is clearly a mere irregular back-vocalic variant of the more widespread verb *säli-* 'chop (e. g. wood shingles)', which in turn derives from PU *śälä- 'cut' (Aikio 2012: 236–237).

2401: ? *tenä 'price' (UEW 521). – Based on PPerm *don 'price, value', PKh *tə̑n 'dowry' and PMs *tin 'price'. As the word is only attested in two neighboring branches, borrowing is possible. The comparison to PYuk *tent- 'wealth' involves an unexplained element *-t- in the Yukaghir form.

2568: *woča 'fence, weir' (UEW 577). – The Uralic cognate set is semantically somewhat heterogeneous: cf. SaaN *oahci* 'obstacle, barrier (in nature), reef', Fi *otava* 'salmon net; Big Dipper', Komi *vož* 'fish weir', KhE *wač* 'town', *wučəm* 'fish weir', MsE *ūš* 'town; fence, enclosure', *ūšəm* 'fish weir', NenT *waʔ*, Ngan *bəʔ* 'fence', SlkTa *kętį* 'strait

between two lakes or between a lake and a river (often rich in fish)', SlkTy *kʷeǯ* 'fish weir; inlet'. The Proto-Uralic meaning was probably 'fence', which in several languages developed into 'fish weir' = 'fence set up in a river to catch fish' (cf. German *Fischzaun* 'fish weir', literally 'fish fence'). In Finnic the word mostly survives only as the name of the constellation Big Dipper, but in Finnish dialects also the meaning 'salmon net' is found, which derives by metonymy from 'weir for catching salmon'. In the Slk dialects there was a shift of meaning 'fish weir' > 'place suitable for fishing with a weir'; in the Ty dialect also the meaning 'fish weir' survives. The meaning 'town' in Ob-Ugric cognates is an extension of 'fence, enclosure' (cf. English *town* ~ German *Zaun* 'fence'). As a side note, also MdE, M *oš* 'town' has been included in this cognate set, but this is not acceptable because PU *č is not reflected as Md *š* and the vowel *o-* is not regular either. As 'fence' appears to be the original meaning, the suggested comparison of the Uralic word family to YukT *wačaɣarej-* 'open the mouth (of an animal)', *wačaɣaj-* 'step over; open wide (of an animal's mouth)' makes no sense from a semantic perspective.

2578: **welji 'brother' (UEW 567–568: uncertain). – Only attested in PFi *velji and PSaa *vielje 'brother', and borrowing from Finnic to Saami is probable because the vowel *-ie-* in Saami is irregular. The idea that the Finno-Saamic word for 'brother' could be related to the Hungarian instrumental case ending *-val / -vel* belongs to the realm of pure speculation. Nikolaeva also mentions PSam *wəj 'half' in this connection, which due to semantic reasons is unlikely to be cognate with PFi *velji 'brother'.

2579: *wala 'word / song / oath' (UEW 812). – UEW cites cognates from Saami, Finnic and Mordvin, but also a Samoyed cognate has been later discovered (Aikio 2006a: 26–27). The meanings of the cognates vary (cf. SaaS *vuelie* 'yoik, Saami song', Fi *vala* 'oath', MdE *val* 'word', Ngan *bəlʲ*, EnT *bare* 'song'), but the connecting factor seems to be some sort of ritual use of language. Hence, it is actually conceivable that the word is etymologically connected with YukK *almə*, T *wolme* 'shaman', YukK *aldu-* 'conjure' (< PYuk *wa/ol-).

2632: *woča- 'wait' (UEW 334: *oća-). – Only attested in the west: obsolete western Saami <*åđsot-*>, PFi *odotta-, PMd *učə-, PMari *wŭče- 'wait'. The reconstruction *oća- is evidently incorrect; the initial *w- is proved by Mari, and the palatalized affricate *ć matches none of the attested forms. UEW also cites Selkup cognates, but confuses two distinct verbs: SlkTa *atị-* 'be visible' (< *atə-) and SlkTa *ättị-*, SlkK *ača-* 'guard' (< *aččə-). These verbs do not have anything to do with each other, and neither suits formally as a reflex of PU *woča-; the former actually reflects PU *itä- 'appear, come into sight' (Helimski 2000: 199).

2638: ? *amV- 'sit' (UEW 8–9). – Based on PKh *āməs- 'sit', *āmət- 'put down', PMs *ūnl- 'sit', *ūnt- 'sit down', PSam *åmtə- 'sit down'. These forms could be parallel derivatives of a PU root *amV-, but borrowing between Samoyed and Ob-Ugric seems also possible.

Appendix C: Potential Uralic or Samoyed loanwords in Yukaghir

1. PYuk *aĺ- 'melt, thaw' (> YukK, T *aĺā-* 'melt', K *aĺō-*, T *aĺuo-* 'melted', K *aĺōjə*, T *aĺuojə* 'ice hole; thawed patch')
< Pre-PSam *ϑəlä- (not attested in Samoyed). – This verb is not found in Samoyed, but it would be the predictable reflex of PU *sula- 'melt, thaw', which has cognates in almost all other branches of Uralic: Fi *sula-*, MdE *sola-*, MariE *šule-* 'melt, thaw', Udm *sḭlḭ-* 'dissolve', KhE *lŏla-*, MsE *tål-*, Hung *olvad* 'melt, thaw' (Sammallahti 1988: 548; UEW: 450–451).

2. PYuk *aŋa 'mouth' (> YukK, T *aŋa* 'mouth')
< Pre-PSam *aŋə or PSam *aŋ 'mouth' (> NenT *ńaʔ*, EnT *eʔ*, Ngan *ŋaŋ*, SlkTa *āk*, *āŋ*, Kam *aŋ*, Mat *äŋ* 'mouth'). – The Samoyed word derives from PU *aŋi 'mouth, opening', and its cognates include Est *ava* 'opening, hole', Komi *vom*, Udmurt *i̮m* 'mouth, opening', KhE *ŏŋ*, *oŋ* 'mouth (of a bottle, fishing weir, river, etc.)', and Hung *aj* 'groove, furrow' (UEW: 11). Also a verbal correlate *aŋa- 'open' is widely attested, cf. e. g. Fi *avaa-* 'open', MdE *av-to-* 'open (wide)', KhN *eŋχ-* 'untie, unbind; take off', MsN *āŋkʷ-* 'open, take off' (UEW: 11; cf. Sammallahti 1988: 542).

3. PYuk *awa 'elder sister' (> YukK *abō* 'elder; elder sister')
< PSam *apå 'elder sister' (> NenT *ńaba* 'stepmother', *ńabako*, Ngan *ŋahu*, Slk *opə* 'elder sister'). – The etymology presupposes that there has been a development *-p- > *-w- in Yukaghir. The Samoyed word is of unclear origin, but a borrowing in the opposite direction can hardly be assumed, as there is obviously some kind of further etymological connection to Khanty and Mansi words with the same meaning; see etymology 139 in Appendix B for discussion.

4. PYuk *čant- 'upriver, uphill' (> YukK *čandə* 'upriver', T *čandeŋ* 'upriver, uphill')
< / > PSam *čəńčå- 'climb, go upriver or uphill?' (> NenT *təna-* 'climb, go upriver or uphill', En *toda-*, Ngan *təntu-* 'overtake', SlkTa *čańčḭ-* 'rise, go out'). – The match is otherwise exact, but the etymology presupposes either a dissimilation *čanč- >> *čant- in Yukaghir or an assimilation *čəntå- >> *čəńčå- in Samoyed. Even if the comparison is correct, the direction of borrowing remains unclear.

5. PYuk *ečē 'father' (> YukK *ečē*)
< Pre-PSam ?*ä(j)ćä >> PSam *äjsä (> NenT *ńīśa*, En *ese*, SlkTa *e̮sḭ* 'father'); note also Ngan *ďesḭ* 'father', which seems to reflect an irregular variant *jäsä. – The etymology is phonologically problematic, as the Samoyed word does not have an affricate. However, an affricate is attested in apparently related Finno-Ugric forms: cf. old Võro *jedsä* 'father' (< Proto-Finnic *ecä), MdM *oćä* 'paternal uncle', MariW *əzä* 'older brother' (< PMari *ĭćä), MsE *ā̈š* 'mother's father' (< PMs *äćə). Hence, PSam *-(j)s- might reflect an earlier affricate *-ć-. See etymology 403 in Appendix B for further discussion.

6. PYuk *eme- 'mother' (> YukK *emej* 'mother')
< PSam *ämä 'mother' (> NenT *ńeb̆a*, EnT *ē*, Ngan *ńemḭ*, SlkTa *e̮mḭ*, Mat *eme*). – The Samoyed word derives from PU *e/ämä 'mother' (> Est *ema* 'mother', SaaS *jiemie*

'womb with an embryo', old Hung *eme* 'sow') (UEW 74; Sammallahti 1988: 536). The similarity of the Uralic and Yukaghir words could also be a mere coincidence, as similar nursery words for 'mother' are quite common in the world's languages.

7. PYuk *ere 'fork' (> YukK *jēr*, T *īr*, *īre* 'furcation, fork (in a tree)')
? < Pre-PSam *ϑärä 'fork?' (> PSam *tärä, not attested in Samoyed). – PSam *tärä would be the expected reflex of PU *särä. This Uralic cognate set shows considerable semantic heterogenity: cf. SaaL *sárre* 'furcation, fork', Liv *sūor* 'fiber, vein, blood vessel', MariE *wür-šer*, Udm *vir-ser* 'vein, blood vessel' (*wür*, *vir* 'blood'), Hung *ér* 'vein, blood vessel', KhE *ler*, *jer* 'stripe, groove', MsE *töär* 'root' (UEW 437; Sammallahti 1988: 548). The meaning 'fork' occurs only in Saami, but the meanings of the other cognates can apparently be derived from the concept of some kind of forked or branching object. If there was once also a Samoyed cognate which retained the meaning 'fork', this might be reflected in PYuk *ere.

8. PYuk *jə̄ 'belt' (> YukK *jə̄*)
< PSam *jiə ~ *niə 'belt' (> NenT *ńī*, SlkTa *čü*, Kam *ǯī*, Mat *ni*); cf. also the derivative *niə-jə (> EnT *niojo*, EnF *ńej*, Ngan *ńiəʤə* 'belt'). – The variant with initial *j- is reflected in Slk and Kam. Both *j- and *n- are secondary prothetic consonants, and only *-iə- reflects the primary stem. The word derives from PU *üwä 'belt'; see etymology 691 in Appendix B for discussion.

9. PYuk *kē- 'slot' (> YukK *kēl* 'slot', *kēdəgən* 'through (a slot)')
< / > PSam *kiə 'hole' (> NenT *śī*, EnF *śe*, Ngan *śiə*, Kam *ši* 'hole'). – As the Samoyed word is itself of unknown origin, borrowing in both directions is possible.

10. PYuk *keľ- 'brother-in-law' (> YukT *keľil* 'brother-in-law')
< PSam *kälü 'brother-in-law' (> NenT *śelʾ*, En *seri*, Old Ngan *śaluŋ*, Slk *śelə). – The Samoyed word derives from PU *käliw 'brother- or sister-in-law' (> SaaN *gálojeatni*, Fi *käly*, MdM *kel*, Komi *kel* 'sister-in-law', KhE *küli* 'brother-in-law').

11. PYuk *köδ- 'tighten' (> YukK *köd-* 'gather, tighten (a rope)')
< Pre-PSam *küdə- (> PSam *kürə- > NenT *śurʾ?* 'waist band of trousers', Ngan *kirəmə-* 'tighten', *kirimi* 'band (e. g., for closing a sack)'). – The Samoyed word derives from PU *käwdi (> SaaI *kievđâ*, Fi *köysi* 'rope', Komi *kẹ̑l*, Udm *kal* 'string, band', KhN *ketə* 'leather strap', MsN *kʷālіy* 'rope, cord') (Aikio 2006a: 19–20; cf. UEW 135). The borrowing to Yukaghir must have occurred before the change *d > *r in Samoyed.

12. PYuk *köj (> YukK, T *köj* 'fellow, boy, (young) man, male')
< Pre-PSam *koj 'man, male' (not attested in Samoyed). – Cf. SaaSk *kuõjj* '(young) husband', KhE *ku* 'man, husband; male animal', *kuj* 'male', MsE *kuj-* 'male' (< PU *koji). The predictable reflex of PU *koji would be Pre-PSam *koj(ə)- > PSam *ko(ə). Note that even though this noun root not attested as such in Samoyed, the PU derivative *koj-ra 'male animal' was preserved as PSam *korå 'reindeer bull', and further borrowed to Yukaghir as *qoroj 'two-year old reindeer bull' (see etymology 34 below). The PYuk vowel *ö could be explained by the palatalizing influence of the following glide *j.

13. PYuk *lamtə- ‘low’ (> Old Yuk (Chuvan) *laudap*, (Ust’-Janskoe) *namdátschit* (assimilated: *lam- > *nam-))
< / > PSam *ləmto ‘low’ (> NenT *ləmto*, En *loddu*, Slk *lamtu*). – The Samoyed word has often been considered cognate with Fi *lansi* ‘low, wet terrain’, MariW *landaka* ‘depression, small valley’, Komi *lud* ‘meadow, pasture’ and Udm *lud* ‘field, meadow; clearing’ (UEW 235–236), however erroneously: the Finnic, Mari and Permic nouns are instead cognate with Ngan *l̨intə* ‘plain, valley’ and reflect PU *l̨inti (Aikio 2014b: 86); see the discussion under etymology 992 in Appendix B.

14. PYuk *lanć̌in- ‘slow, calm’ (> YukT *ladȋdā* ‘slowly’, *ladȋnban-* ‘slow, calm’)
< Pre-PSam *lånså ‘calm’ (not attested in Samoyed). – Pre-PSam *lånså would be the regular reflex of PU *lonśa ‘calm, soft, gentle’ (> SaaN *loažži* ‘abated wind’, KhN *luńśə* ‘lukewarm’, MsE *låńśəŋ* ‘soft, mild, warm’, Hung *lágy* ‘soft, weak, gentle’). The substitution PSam *-ns- > PYuk *-nć̌- is phonotactically motivated: there was no cluster *-ns- in PYuk. See also etymology 31.

15. PYuk *ľer- / *ľir- ‘shake?’ (> YukK *irkə-*, T *l̓irke-* ‘tremble, shake’, K *irkej-* ‘get frightened’, *irkušej-* ‘frighten’, T *l̓eruge-* ‘shake lightly’)
< PSam *lęrV- ‘frighten’ (> NenT *leŕo-* ‘be frightened, get frightened’, *lerabta-* ‘scare, frighten’, SlkTa *lęrį̈mpį̈-*, K *larį̈mpį̈-* ‘be afraid’, Kam *nerē-* ‘get frightened’, Mat *nęr-* ‘frighten’). – The Samoyed verb derives from PU *l̨idi- and is cognate with MariE *lüδa-*, MariW *lüδä-* ‘be afraid’ (Aikio 2014b: 85–86). In Kam and Mat there has been an irregular change *l- > *n-.

16. PYuk *meδiń ‘as soon as’ (> YukK *medin*, *mödin*, T *miriń*)
< / > Pre-PSam *mädə > PSam *märə ‘soon’ (> NenT *ḿerᵊʔ* ‘soon’, EnF *mär* ‘quickly, soon, early’, Ngan *merə* ‘early’). – The etymology of PSam *märə is unknown; the Samoyed-Yukaghir comparison presupposes that the *-r- goes back to earlier *-d-.

17. PYuk *mej- ‘take’ (> YukK *mej-nu-*, T *mei-*)
< / > Pre-PSam *mę(x/j)- or PSam *mę- ‘take’ (> NenT *me-*, EnT *mu-*, Mat *mę-*). – The form is very short, which adds to the hypothetical nature of this etymology; moreover, PYuk *j has no correspondent in the Samoyed form. The origin of PSam *mę- is unknown, but theoretically it could reflect Pre-PSam *męx(i)- or *męj(i)-; perhaps PYuk *j is a substitute for a lost Pre-PSam *j or *x. Compare etymology 40, which seems to involve a substitution of PYuk *ɣ for Pre-PSam *x.

18. PYuk *mel- ‘breast’ (> YukK *melut* ‘breast’)
< Pre-PSam *mäl ‘breast’ (not attested in Samoyed). – Pre-PSam *mäl would be the expected outcome of PU *mälki ‘breast’, which is otherwise widely attested in the family (cf. SaaN *mielga*, MariE *mel*, Udm *mi̮l*, KhE *mö ɣəl*, MsN *mā ɣəl*, Hung *mell*). The stop *k was lost in the contexts *-l_i- and *-r_i- at an early phase of Pre-PSam (Aikio 2002: 26).

19. PYuk *mon- ‘say’ (> Yuk K, T *mon-* ‘say’)
< / > PSam *mån- / *mon- ‘say’ (NenT *man-*, Ngan *mun-*, Kam *ma-*). – The Ngan form points to PSam *o, the other forms to PSam *a. The verb is of unknown origin,

so a borrowing from Yukaghir to Samoyed also seems possible. Cognates from other branches of Uralic have been proposed for the Samoyed words, but these must be rejected; see etymology 1267 in Appendix B for discussion.

20. PYuk *ń/nim 'name' (> *ń/niw > *ńū > YukK *ńū*; cf. Old Yuk (1692) <*nim*>)
< PSam *nim 'name' (> NenT *ńim*, *ńum*, EnT *ńi?*, EnF *ńi(m-)*, Ngan *ńim*, Slk *nim*, Kam *nəm*, Mat *nim*, *nüm*). – The Samoyed word derives from PU *nimi 'name', and it is cognate with SaaN *namma*, Fi *nimi*, MdE *ľem*, MariE *lüm*, Komi and Udm *ńim*, KhE *nem*, MsE *näm*, Hung *név* 'name'.

21. PYuk *nō- 'scrape, scratch' (> YukK *nō-*, T *nuo-*)
< Pre-PSam *nəϑ- 'scrape' (> PSam *nət- > NenT *nə?-*, EnF *no?-*, Ngan *noδ-ur-*, SlkTa *nat-*, Kam *nå?-*). – The Samoyed verb derives from PU *nusi- (> MdE *nozorda-* 'scratch', MariE *nuže-* 'scratch off', KhE *nŏʟ-* 'scrape').

22. PYuk ?*ńomə or ?*ńemə 'hare' (> Old Yuk (Omok) <нема> ? = /*ńemə*/ or /*ńomə*/; the phonologization of the form is not clear (cf. HDY 1409; Rédei 1999: 40), and the word is not attested in modern varieties of Yukaghir)
< PSam *ńåmå 'hare' (> NenT *ńawa*, Ngan *ńomu*, SlkTa *ńoma*). – The Samoyed word derives from PU *ńoma and is cognate with SaaN *njoammil*, MdE *numolo*, Komi *ńimal* and Hung *nyúl* 'hare' (< *ńoma-la) (UEW: 322).

23. PYuk *ńorć̆ə 'moss, lichen' (> YukT *ńorďe*)
< / > PSam *ńårso 'moss' (> NenT *ńarco*, EnT *naďuδo*, Ngan *ńorsu*). – Nikolaeva considers this Yukaghir word a derivative of PYuk *ńoro- (see etymology 24), but the match with Samoyed is rather striking. The substitution of PYuk *ć̆ for PSam *s is motivated by a phonotactic restriction: there apparently was no cluster *-rs- in PYuk, as such is not attested in the material in HDY. Likewise, PSam *-ns- was rendered with PYuk *-nć̆-, as the cluster *-ns- was also foreign to PYuk (see etymologies 14 and 31). On the other hand, if the Samoyed word was instead borrowed from Yukaghir, the derivational etymology of the Yukaghir item could still be correct.

24. PYuk *ńoro- 'moss; bog' (> YukK *ńoroľ*, T *ńoriľ* 'pool; moss')
< / > PSam *ńərV- 'bog' (> En *noro*, EnF *nor*, Ngan *ńerᵘa*, Slk *ńarə). – Note that Nikolaeva also includes YukT *ńorďe* 'moss, lichen' (< PYuk *ńorć̆ə) in this lexical set, but it could also be a borrowing from a different Samoyed word (see etymology 23).

25. PYuk *olo- 'steal' (> YukK *olo-*)
< Pre-PSam *ϑålä- 'steal' > PSam *tålä- (> NenT *taľe-*, EnF *tare-*, Ngan *toľi-*, Slk *tuələ-, Mat *tälər-*). – The Samoyed word derives from PU *sala- 'steal' and has widespread cognates: e. g., SaaN *suoli*, Fi *salaa* 'secretly', MdE *sala-* 'steal', MariW *šolə* 'thief', KhE *laləm-*, *jaləm-*, MsE *tūlmənt-* 'steal'.

26. PYuk *oŋ- 'put on, fit in' (> YukT *oŋ-* 'put on', *oŋā-* 'fit in (tr.); hope for')
< Pre-PSam *ϑoŋ- 'penetrate, enter' (> PSam *toŋ-, not attested in Samoyed). – This would be a predictable reflex of PU *soŋi- 'penetrate, enter', attested in SaaN *suotnja-* 'creep in (e. g., into a cave)', MariE *šoŋala-* 'put on (e. g., a coat or a shirt)', KhE *lăŋa-*, MsE *tuw-* 'go in', Hung (arch.) *av-* 'penetrate, become ingrown' (cf. Sammal-

lahti 1988: 548, who reconstructs *sōŋi-). The assumed semantic development 'go in, creep in' > 'put on (clothes)' in Yukaghir also occurred in the Mari cognate (which is a new addition to this Uralic etymology), and further semantic parallels are also found, e. g. SaaN *cáhki-* 'put in, stick into; put on (a piece of clothing)' and Fi *puke-* 'put on, dress; (dialectally also) creep into'. UEW (446) also cites Samoyed cognates (NenT *ťū-*, Ngan *čii-*, Kam *šu-* 'go in, enter'), but this comparison is phonologically impossible: the verb must be reconstructed as PSam *tüj- (Janhunen 1977: 167), and both the labial front vowel *ü and the consonant *j are incompatible with PU *soŋi-. Janhunen (1981) and Sammallahti (1988: 548) have rejected the comparison to Samoyed.

27. PYuk *paj- 'strike, hit' (> YukK *paj-*, T *pāj-* 'strike, hit')
< PSam *pəj(ä)- 'strike, hit; chop wood' (> NenT *pæʔ-*, En *ṕau(ʔ)-*, Ngan *hoi-* 'chop firewood', Slk *pać-al-*, Mat *häj-äl-* 'strike, hit'). – The Samoyed word derives from PU *puďa- 'hit, split, break' and is cognate with SaaN *bođu* 'loose, separate(d)', Fi *putoa-* 'fall', MariE *puδərte-* 'break; chop up', Udm *pilį̑-*, *piĺį̑-* 'split, break', and MsE *paĺ* 'chip, shaving' (Aikio 2006a: 22–23).

28. PYuk *paŋq- 'seine' (> YukK *paɣul*)
< / > PSam *poŋkå 'net' (> NenT *poŋka*, EnT *foga*, SlkTa *poqqį,* Mat *hoŋga*). – The Samoyed word is of unknown origin, so a borrowing in the opposite direction seems equally possible. The vowel correspondence PYuk *a ~ PSam *o is deviant, and does not provide an argument for either direction of borrowing. Note also that there is a similar word in Khanty: E *poŋk*, *păŋʷkʷ*, S *poŋχ* 'row of nets' (< PKh *paŋk). Due to the irregular vowel correspondence this cannot be a cognate of PSam *poŋkå, but the word is no doubt somehow related through borrowing.

29. PYuk *pē 'mountain, rock, big stone' (> YukK *pē*)
< / > PSam *pəj 'stone, rock' (> NenT *pæ*, EnF *pu*, SlkTa *pü*, Kam *pi*). – Note that in UEW (378) and Janhunen (1977: 112) this Samoyed cognate set is confused with another, distinct one: Ngan *hʷalə*, Mat *hilä* 'stone' (< PSam *pe̮lə). – As for the meaning 'mountain' in Yukaghir, cf. NenT *Pæʔ* 'the Ural Mountains' (literally: 'rocks'). Note, however, that the near-homonymous PSam *pəj(ä)- 'strike, hit' appears to have been borrowed into Yukaghir as *paj-, with the glide preserved (see etymology 27). The origin of the Samoyed word is not clear, although it has occasionally been considered cognate with the isolated Finnish *pii* 'flint'; the comparison is phonologically problematic. See etymology 1758 in Appendix B.

30. PYuk *pel- 'old man, husband' (> YukK *pulut* 'old man, husband; bear', T *pelur* 'id.; bridegroom'). In YukK there apparently was a development *e > *ö > *u*, i. e., first a labialization caused by *p- and then assimilation to the second-syllable *u.
< PSam *pälä 'side; half; relative, companion, spouse' (> NenT *ṕeĺa* 'half; piece; relative', Ngan *helį̑* 'part, half', SlkTa *pe̮lį̑* 'partner, mate, companion', Mat *hälä* 'half, side'). – The Samoyed word derives form PU *pälä 'half, side', with widely attested cognates: e. g., SaaN *bealli*, Fi *puoli* 'half, side', MdE *peĺ* 'side', *peĺe* 'half', MariE *pele*, Komi *pe̮l*, Udm *pal*, KhE *pe̮ləḵ* 'half, side', MsE *pööl* 'side', Hung *fél* 'half, side'. The loan origin of the Yukaghir item is supported by the fact that only the meaning

'husband' (< 'spouse') is found in Yukaghir, which in turn is a secondary semantic development from 'half'.

31. PYuk *qanć- 'cold' (> YukT *qaďu* 'cold', *qanďe* 'winter', *qańqa-* 'grow cold'; K *qaďîlət-* 'temper')
< PSam *känsä- 'cold; get cold' (> NenT *χənco* 'cool', EnT *kodě-*, Slk *kaśə-*, Kam *kənzə-* 'cool down, get cold'). – The Samoyed word quite probably derives from PU *kVnśä- (? *känśä-) (> MariW *kiže-* 'freeze', Komi *kẹžid*, Udm *keźit* 'cold'), although the PSam vowel *ä does not correspond regularly to the Mari and Permic forms (Aikio 2002: 21). As for the substitution PS *-ns- > PYuk *-nć-, see etymology 14.

32. PYuk *qon- 'go, walk' (> YukK, T *qon-*)
< PSam *kån- 'go (away)' (> NenT *xan-*, En *kańi-*, Ngan *koni̯-*, Slk *quən-*, Kam *kå(n)-*). – The Samoyed word derives from PU *kani- 'go (away)'. This verb stem has no underived cognates in the other Uralic branches, but it is widely attested in the causative derivative *kan-ta- 'carry' (cf. UEW 124, where reflexes of *kanta- 'carry' are listed, but the derivational etymology is not acknowledged; cf. Janhunen 1981: 221, 231). Note that in Yukaghir there is also a similar causative formation: YukK *qontə-* 'carry'. This looks strikingly similar to the Uralic causative *kan-ta-, but nevertheless, it seems to be an independent formation because PYuk *-nt- would be reflected as YukK *-d-*.

33. PYuk *qontə- ~ *köntə- 'lie' (> YukK *qodō-*, T *quduo-*, *kuduo-* 'lie', K *kudē-*, T *kudie-* 'put down')
< / > PSam *kontå- 'fall asleep' (> NenT *χona-*, EnT *koda-*, Ngan *kuntu-*, SlkTa *qonti̯-*), *kont-ö- 'sleep' (> NenT *xońo-*, EnT *kodu-*, Kam *kunō-*). – The origin of the Samoyed verb is unclear, so one could also consider borrowing in the opposite direction. The alteration between front and back vocalic forms in Yukaghir is irregular.

34. PYuk *qoroj 'two-year-old reindeer bull' (> YukK *qoroj*)
< PSam *korå 'reindeer bull (> NenT *xora*, EnF *kura*, Ngan *kuru*, Slk *qorə*, Kam *kora*). – This is a Siberian Wanderwort of Samoyed origin; compare further Chukchi *qoraŋə*, Kerek *qojaŋa*, Alutor *quraŋa*, Itelmen *qos*, and Central Siberian Yupik *qujŋik* 'domesticated reindeer' (Fortescue 2005: 238). The Samoyed word derives from PU *koj-ra and is cognate with Fi *koira* 'dog', *koiras* 'male animal', Komi *kị̈r-* 'male', KhE *kar*, MsE *kə̄r* 'male; reindeer bull', Hung *here* 'drone; testicles' (UEW 168–169). The Uralic word is a derivative of *koji 'man, male' (see etymology 12).

35. PYuk *sapa- 'hit' (> YukK *šapaj-* 'hit', *šapaɣədaj-* 'strike, hit', *šapaɣaj-* 'tumble, fall down')
< / > PSam *səppə- 'hit' (> NenT *səpə-* 'hit with an axe', *səpʾda-* 'hit (the target)', EnF *sopu-* 'cut down, fell', Mat *sabəd-* 'hit'). – The origin of the Samoyed verb is unknown, so both directions of borrowing are possible. The geminate *-pp- suggests that the Samoyed verb is a post-PU innovation.

36. PYuk *sēr 'hail, snow ?' (> YukK *sēriľ* 'snow on trees', T *sierul* 'hail')
< PSam *sẹr 'ice' (> NenT *ser*, NenF *χeɪ*, EnF *si̯(r-)*, Ngan *si̯r* 'ice; salt', Mat *sẹr-ẹt* 'hail'). – The Samoyed word has no cognates elsewhere in Uralic, but it is probably

etymologically identical to the homonymous PSam adjective *sɐ̯r 'white' (> NenT *ser*, EnT *sɨ̯ʔ*, Ngan *sɨ̯r*, SlkTa *sɐ̯rɨ̯*, Kam *sirä*). Moreover, as PSam *sɐ̯r goes back regularly to Pre-PSam *sɨ̯r, there is probably a more remote connection to PSam *sɨ̯rå 'snow; winter' (> NenT *sira*, EnT *sɨ̯ra*, Ngan *sirü* 'snow; winter', SlkTa *sɨ̯rɨ̯*, Kam *sərä*, Mat *?sirä* 'snow'), although the morphological relationship of the two words remains unclear. As for the semantic correspondence between Samoyed and Yukaghir, note especially the Mator derivative *sɐ̯rɐ̯t* 'hail' and the NenF cognate *χeʟ* in the expression *χeʟ χaĺu* 'hail shower' (literally "ice rain").

37. PYuk ?*solijə 'intestine, gut' (> Old Yuk (RS) <*šolje*>)
< PSam *sålä 'intestine, gut' (not attested in Samoyed). – This word is not found in Samoyed, but PSam *sålä would be the predictable reflex of PU *śola 'intestine, gut', which is widely attested in other branches: cf. SaaN *čoalli*, Fi *suoli*, MdE *śulo*, MariE *šolo*, Komi and Udm *śul*, KhE *sol* 'intenstine, gut' (UEW 483–484).

38. PYuk *so/aǰqə 'loon (Gavia)' (> YukK *saǰya*)
? < Pre-PSam *såǰkå 'goldeneye (or some similar bird)' (not attested in Samoyed). – The PU word *śodka ~ *śoďka 'goldeneye' is not attested in Samoyed, but it has widely attested cognates in other branches: cf. SaaN *čoaďgi*, Fi *sotka*, MdE *śulgo*, MariE *šoe*, Udm *śɐ̯d-śulɨ̯*, KhE *saj* and MsE *sɐ̯ľ* 'goldeneye' (UEW 482). The Permic forms require a proto-form *śodka, whereas Khanty and Mansi presuppose *śoďka; the other forms are ambiguous. The regular Samoyed cognate of the latter form would be PSam *såjkå, and PYuk *saǰqə could reflect an intermediate stage in the shift PU *ď > *J̌ > PSam *j.

39. PYuk *tono- / *toŋo- 'follow, chase, drive' (> YukK *toŋo-*, *tono-*, T *tono-*).
< / > PSam *tånåt/s- (> Ngan *tonu?-* 'chase, drive on'). – There is no certainty of the direction of borrowing. Also, the irregular alteration between *-n- and *-ŋ- in Yukaghir is obscure.

40. PYuk *weɣ- 'lead' (> YukK *egē-* 'lead by hand', T *wegie-* 'lead; carry')
< Pre-PSam *wix- 'take (somewhere), lead' > PSam *ü- 'pull' (> NenT *ńuχ^{ə}ľe-* (derivative), SlkTa *ü-*). – The Samoyed verb is cognate with SaaSk *viikkâ-*, Fi *vie-* 'take (somewhere)', MdE *vije-* 'bring, take' and Hung *visz* 'carries, takes, transports' (< PU *wixi-) (Aikio 2013: 170–171; cf. UEW: 573).

41. PYuk *(w)ejnčī 'good spirit, shaman's spirit protector' (> YukK *ejďi*)
< PSam *wajŋtut 'spirit' (> NenT *jīnt^{ə}ʔ* 'breath, steam, air', EnF *bedu* 'vapor (from the breath); deep breath, sigh', Ngan *bačüʔ* 'soul'). – The Samoyed root *wajŋ- derives from PU *wajŋi and is cognate with SaaN *vuoigŋa* 'spirit; breath', *vuoigŋat* 'breathe' (UEW: 552).

42. PYuk *wentə- 'stretch' (> YukT *wedegej-* 'stretch out; extend, expand (intr.)', *wennī-* 'keep stretched', *wennə-* 'stretched')
< PSam *wentə- 'straighten out (intr.)' (> Ngan *bɨ̯ntə-*). – The Samoyed verb is confined to Nganasan, but it apparently reflects PU *wen-ti-, a derivative of *weni- 'stretch (intr.)' (> SaaN *vatna-*, Fi *veny-*, MdE *veńeme-*). The comparison between

Yukaghir and the aforementioned western Uralic forms has already previously been suggested, but the Nganasan cognate is a new addition to this etymology (cf. UEW 819; SSA s. v. *venyä*).

43. PYuk *wonč- 'root' (> YukK *ožū* 'thin root used as a thread for fastening boats', T *warulū* 'root')
< PSam *wånčo 'root' (> NenT *wano*, Ngan *bəntu*, Slk *končə, Kam *mona*, Mat *mondo*). – The Samoyed word derives from PU *wanča(w) and is cognate with Komi *vuž* and Udm *vįžį* 'root' (UEW 548; Sammallahti 1988: 541).