

Indo-Iranian loanwords in Finnic — a critical overview*

S. Holopainen

University of Helsinki (Finland); sampsa.holopainen@helsinki.fi

Abstract. The article deals with presumed Indo-Iranian loanwords in Finnic languages which have no cognates in other branches of the Uralic language family. A mainstream view, held by nearly all scholars of Uralic etymology, is that the contacts began already at the proto-language level, and that the words with a wide distribution in Uralic languages were borrowed from Proto-Indo-Iranian. Actually, contact is even attributed to before that, from “Pre-Indo-Iranian” which was still retaining the PIE vowel system, while some changes characteristic of Indo-Iranian had already happened in the consonantal system. The article discusses all the etymologies presented in earlier research and assesses their credibility (convincing/unconvincing/unclear). According to the author, the number of Indo-Iranian borrowings restricted to Finnic is in fact very low. In almost half of the cases evaluated in the paper, the words are either of non-Indo-Iranian origin or have cognates in other Uralic languages. If the unclear cases are counted, the number is even greater. Finnic words with a plausible Indo-Iranian etymology clearly reflect several diachronic layers, all of which are shared by some other Uralic branches. This means that Finnic could not have acquired these words as a separate language. Some clearly late Iranian loans such as *varsa* and *vasa* have regular cognates in Mordvin [Koivulehto 1999a: 218–219], whereas some more archaic words are confined to Finnic. It is, however, interesting to note that many of the loanwords confined to Finnic manifest clearly Iranian features, and among those that are not demonstrably Iranian, there are no features that force us to consider these borrowings earlier Proto-Indo-Iranian loans; some of the more archaic loans are either problematic (such as *verso*) or should be rejected (such as *herätä*).

There are few irregular cases (**waćara*, **akštara*, **šukta*) which cannot be explained as wrong etymologies or results of undetected sound laws, though. They could either be parallel Indo-Iranian loans or indicate that the respective Indo-Iranian words

* I would like to express my gratitude to Janne Saarikivi, Niklas Metsäranta, Santeri Junttila, Petri Kallio, Juha Kuokkala and the editor of this volume for useful comments and discussions on the topic of this paper and comments of its earlier versions. All the remaining errors are, of course, mine. A large part of the results of this paper has been published in my 2019 dissertation *Indo-Iranian borrowings in Uralic: critical overview of sound substitutions and distribution criterion*.

spread through a dialect continuum which consisted of predecessors of Finnic, Saami and Mordvin, at the least. However, at least **waćara* and **šukta* clearly reflect different layers of Indo-Iranian borrowings (**waćara* with **ć* from PII **j* and **šukta* with **š* from PI **ts*). It is therefore unlikely that they were simultaneously diffused through the already differentiated West-Uralic dialects.

Keywords: Finnic languages, Uralic languages, Indo-Iranian languages, etymology, language contact.

Индоиранские заимствования в прибалтийско-финских языках: критический обзор

С. Холопайнен

Хельсинкский университет (Финляндия); sampsa.holopainen@helsinki.fi

Аннотация. В статье рассматриваются предполагаемые индоиранские заимствования в прибалтийско-финских языках, не имеющие соответствий в других ветвях уральской языковой семьи. Основная точка зрения, которой придерживаются почти все исследователи уральской этимологии, состоит в том, что контакты начались уже на праязыковом уровне и что слова, широко представленные в уральских языках, были заимствованы из праиндоиранских языков. Более того, есть даже точка зрения, относящая контакт к «доиндоиранской» эпохе, когда сохранялась еще праиндоевропейская система вокализма, а в системе согласных уже произошли некоторые изменения, характерные для индоиранских языков. В статье обсуждаются все этимологии, предложенные в более ранних исследованиях, и оценивается их достоверность (убедительные / неубедительные / неясные). По нашему мнению, количество индоиранских заимствований, ограниченных прибалтийско-финскими языками, на самом деле очень мало. Почти в половине случаев, рассмотренных в статье, слова либо не являются индоиранскими по происхождению, либо имеют соответствия в других уральских языках. Если включить в эти подсчеты и случаи неясных этимологий, число слов, которые нельзя считать заимствованиями из индоиранских в прибалтийско-финские, будет еще больше. Прибалтийско-финские слова, имеющие надежные индоиранские этимологии, без сомнения, отражают несколько диахронических пластов, и при этом они имеют соответствия в других уральских ветвях. Это означает, что праприбалтийскофинский язык не мог заимствовать эти слова сепаратно, как отдельный язык. Некоторые явно поздние иранские заимствования, такие как *varsa* или *vasa*, имеют регулярные соответствия в мордовском языке [Koivulehto 1999a: 218–219]. Есть и некоторое количество более архаичных иранских слов, дистрибуция которых ограничивается прибалтийско-финскими. Надо отметить, что многие из таких заимствований явно

демонстрируют черты, характерные для иранских языков, а те, которые не являются очевидно иранскими, не имеют таких особенностей, которые заставляли бы нас датировать их более ранней доиндоиранской эпохой; наконец, этимология некоторых из таких предполагаемых архаичных заимствований либо проблематична (как в случае *verso*), либо должна быть отклонена (как в случае *herätä*).

Есть несколько случаев очевидно верных этимологий, демонстрирующих нерегулярные фонетические соответствия. (**wačara*, **akštara*, **šukta*); их фонетический облик не получается объяснить как результат действия каких-то еще не сформулированных звуковых законов. Можно думать, что в данном случае мы имеем дело либо с параллельным заимствованием индоиранских слов в отдельные языки, либо с распространением индоиранских слов в рамках диалектного континуума, который состоял по крайней мере из прибалтийско-финских, саамских и мордовских языков. Но, как минимум **wačara* и **šukta*, без сомнения, отражают разные временные слои индоиранских заимствований (**wačara* с **ć* из праиндоиранского **j*, но **šukta* с **š* из праиранского **ts*). Это делает маловероятным предположение об их одновременном распространении в отдельных западных ветвях уральских языков.

Ключевые слова: прибалтийско-финские языки, уральские языки, индоиранские языки, этимология, языковые контакты.

1. Introduction

The study of Indo-Iranian loanwords in Uralic languages has a notable history of more than a hundred years (see [Joki 1973: 3–243] for a comprehensive presentation of early research history). A mainstream view, held by nearly all scholars of Uralic etymology, is that the contacts began already at the proto-language level, and that the words with a wide distribution in Uralic languages were borrowed from Proto-Indo-Iranian. Actually, contact is even attributed to before that, from “Pre-Indo-Iranian”, which was still retaining the PIE vowel system, while some changes characteristic of Indo-Iranian had already happened in the consonantal system¹. Some geographically central branches of the Uralic family, such as Permic or Ob-Ugrian, as well as Hungarian, continued to contact Iranian languages until the late prehistorical period and early Middle Ages, cf. [Korenchy 1972; Joki 1973; Rédei 1986]. However, for reasons relating to the geographical

¹ It is possible that there were contacts already between Proto-Uralic and Proto-Indo-European, cf. [Koivulehto 2001b], but this is beyond the scope of this article.

location of Proto-Finnic it has been usually assumed that Proto-Finnic did not have any independent contacts with Indo-Iranian languages after its split from Proto-Uralic.

In the late 1990s and early 2000s, Jorma Koivulehto [1999a; 2001a, 2001b], Asko Parpola [1999] and Pekka Sammallahti [1999; 2001] proposed a number of Indo-Iranian etymologies for words that are found only in the Finnic or Saami branches. In this paper, I investigate all the etymologies that have a distribution limited only to Finnic. I try to determine whether it is reasonable to suppose their independent borrowing by Pre-/Proto-Finnic, or whether their cognates were simply lost from other Uralic languages. Indo-Iranian etymologies in Saami were explored in a similar study elsewhere [Holopainen 2018].

The importance of this topic was highlighted e.g. by Saarikivi and Grunthal [2005: 127–129]. The dating of Finnic separation from its nearest neighbouring branches is influenced by the early Indo-European etymologies, which were suggested mainly by Koivulehto. Early Indo-European (incl. Indo-Iranian) loans in Finnic missing from elsewhere have indeed been used as evidence for early dispersal of the Uralic family. The same statement was made about loanwords in Saami, which likewise includes a lot of vocabulary with tentative archaic Indo-European origin. However, Koivulehto himself has expressed the view that the distribution alone is not a well-working criterion in determining the age of Indo-European loans in Uralic [Koivulehto 1999a: 210]. The same view was expressed also by Kallio [2012: 227], and I agree with it. So the very fact that a loanword is present only in Finnic (or Saami, Mordvin, or any other branch of Uralic) tells less of its age than the phonological characteristics.

In this article, I concentrate on linguistic evidence, and leave archaeological and other kinds of considerations aside (some recent archaeological considerations are very briefly summarized below).

2. The background of the contacts

2.1. Taxonomy of Finnic within the Uralic language family

While the Uralic language family is a clearly defined entity, the exact relations between different branches of Uralic are a matter of discussion, viz. [Itkonen 1997; Salminen 2001; 2002; Häkkinen 2009]. Only the problems

concerning the taxonomy of Finnic relevant for our topic are shortly presented here².

Although many of the proto-languages postulated between Proto-Uralic and Finnic in earlier research are now considered obsolete by many researchers [Häkkinen 1984; Itkonen 1997; Salminen 2002; Saarikivi 2011: 88–95], it is possible that the Saami and the Mordvin branches of Uralic are genetically the most closely related to Finnic. This has been stated explicitly by Häkkinen [2009: 15–16], who calls the Finno-Saami-Mordvinic proto-language *West-Uralic*, and some others (e.g. [Aikio 2015b]) have followed his example. However, the exact relationship between these three branches is not clear at all [Zhivlov 2014: 115–117; Saarikivi 2011: 106–110; Saarikivi, Grünthal 2005: 114–117, 122]. Traditionally it was assumed that Saami and Finnic are most closely related to each other (see, for instance, [Sammallahti 1999]), but this view is frequently criticized in modern research. Aikio [2012b: 69] states that the relation between Saami and Finnic is very complicated due to a long-lasting areal convergence, to the point that the issue “remains so far unsolved, and perhaps insoluble”.

The views on when Proto-Finnic or its predecessor started to be spoken around the Baltic Sea vary widely [Aikio 2012b; Saarikivi, Grünthal 2005]. Most recently, Valter Lang [2015; 2016: 32–33] has suggested a new convincing model for the split and dispersal of the Finnic branch. He suggested that the predecessor of Proto-Finnic has spread from the Volga region to the Daugava basin in the Baltic area and from there to its current speaking area in the Late Bronze Age. This idea places the early phases of Finnic more south and east than has often been assumed, perhaps bringing the speakers of Pre-Finnic to closer proximity to speakers of Iranian.

2.2. Taxonomy and prehistory of Indo-Iranian

The Proto-Indo-European language was probably spoken in the Pontic steppes, and Proto-Indo-Iranian likely emerged near this area as well

² A short remark should be made on terms Proto-Uralic and Proto-Finno-Ugric. I am not taking a stance on whether to reconstruct a Proto-Finno-Ugric intermediary stage after the Proto-Uralic one or not. The term Proto-Uralic is used in the paper for the reconstructed proto-language which acquired the earliest Indo-Iranian loans, and also for the reconstruction stage preceding the characteristic, possibly common innovations of Finnic, Saami and Mordvin.

[Mallory 1991; Parpola 2015: 35–50; Kallio 2006]. It can be assumed that after the Proto-Indo-European period, the linguistic ancestors of Indo-Iranians, Armenians and the Greeks occupied the territory of the so-called Yamnaya culture from ca. 3300–2500 BC. These three branches of Indo-European share numerous innovations, so they might go back to the same dialect of Indo-European [Martirosyan 2010]. According to Parpola [2015: 51–54], the Proto-Indo-Iranians lived in the so-called Catacomb Grave culture between Dnepr and Volga from 2500 BC onwards.

Proto-Indo-Iranian and Proto-Iranian obviously were geographically close enough to Proto-Uralic (or at least Proto-Finno-Ugric) for the contacts to occur. This is proven by a large number of early borrowings wide-spread in the Uralic languages (for example, PU **śata* ‘hundred’ ← PII **ćatá-* id., PU **asVra* ‘lord’ ← PII **ásura-* id.).

In the Uralic languages, even the oldest loanwords consist of several layers. The earliest Indo-Iranian loans were acquired from Pre-Indo-Iranian, and later a large number of loans were acquired from Proto-Indo-Iranian proper. After the split-up of Proto-Uralic, its daughter languages continued to be in contact with Iranian languages, which resulted in different loanword layers in different branches of Uralic. According to Koivulehto [1999a: 220–227; 2001b: 254–299], in the western part of the Uralic family (corresponding to the traditional Finno-Permic affinity) there are loans which are clearly Proto-Iranian; also the Finnic languages include many such cases. The latest loans in Finnic are probably later than the Proto-Iranian stage. They show some phonological innovations characteristic of Ossetic and might therefore be from an early form of Alanian (for example, Fi *varsa* ‘foal’ ← Pre-Ossetic **warsa-*, cf. Ossetic *wyrs*, *urs*; from PII **wr̥šan-* [Koivulehto 1999a: 226–229]).

Indo-Aryan origin has also been supposed for some Uralic and Finnic words, see [Parpola 1999; Koivulehto 1999a: 219–220, 231–233; Napolskikh 2014], but there is no conclusive evidence to postulate contacts between Uralic and Indo-Aryan. Koivulehto [2007: 254, footnote 4] dropped the idea of Indo-Aryan loans later. Helimski [1997] has also suggested that a part of Indo-Iranian loans in some Uralic languages could be derived from an unattested branch of Indo-Iranian, the so-called Andronovo Aryan. However, this idea has not received general acceptance, and anyway is not so much relevant for the study of loanwords in Finnic (see Zhivlov [2013] in support of Helimski’s hypothesis, and Napolskikh [2014: 84–85] for criticism).

The later, recorded history of Indo-Iranian languages in the Near East and Central and South Asia is well-documented and will not be presented here.

3. Survey of the etymologies

I will further discuss all the etymologies presented in earlier research and assess their credibility (convincing/unconvincing/unclear). The etymologies are taken mainly from the following sources: [Aikio 2014; 2015b; Bláček 1990; EES; Joki 1973; Koivulehto 1999a; 2000; 2001a; 2001b; 2003³; 2005; Parpola 1999; 2010; Rédei 1986; SSA; Uotila 1973], although many of the etymologies stem originally from earlier works, such as [Munkácsi 1901] or [Jacobsohn 1922]. The etymologies presented by Katz [2003] will not be systematically discussed here, because the methods and results of Katz have been not widely accepted within the Uralic linguistics, cf. [Aikio, Kallio 2005] for a detailed criticism of Katz's work. The default forms given here are (standard) Finnish if not mentioned otherwise.

3.1. Possible Pre-Indo-Iranian etymologies (Pre-II **e* retained)

3.1.1. *Herätä, heräjä-* ‘to wake up’ (has cognates in all Finnic languages)

← Pre-II **Hdžer-* > Av perf. *ǰayara* ‘is awake’, OI medium *jarase* ‘he wakes up’ ([Cheung 2007] **Hgar-*⁴; [EWAIA I 574–575]; [LIV 245–246] s. v. **h₁ger-*)

([Koivulehto 1999a: 221, 2001b: 291])

Koivulehto assumes that in this very early borrowing the Indo-Iranian **dž* (which develops from PIE **g* before palatal vowels) is substituted by Pre-Finnic **č*. The Indo-Iranian root is probably inherited from Indo-European (with cognate in Greek ἐγείρω ‘I wake up’ etc.), and semantically the loan etymology is convincing.

However, Koivulehto's assumption that Finnic *h* can reflect earlier **č* is outdated by now. Aikio [2015a: 4–5] has convincingly shown that **č* develops to *t* in all positions in Finnic, and earlier examples of the development **č* > *h* are falsely reconstructed. Thus, the Finnic word has

³ This work is an unpublished handout of a presentation, but the etymologies have been later published and commented in [EES] and [Häkkinen 2004].

⁴ Cheung's notation shows the retained **g-* because in certain positions (before back vowels) the velar stop was regularly retained.

to reflect earlier *šerä-, if the word indeed goes back to an earlier stage than Proto-Finnic. If the etymology is correct, a substitution *š ← *dž has to be assumed. This is possible but unlikely, as the affricate *č would be the expected substitution. PII *dž was retained in both Proto-Iranian and Proto-Indo-Aryan, so a later Iranian loan into Finnic is also unlikely, and the *e*-vocalism also makes this assumption impossible.

Furthermore, Junttila (manuscript) connects the verb *herätä* to the adjective *herkkä* ‘sensitive’ (= Estonian *erk* ‘watchful’). Also [EES] (s. v. *erk*) and already [SKES] connect the verb to Finnish *herkkä* and its cognates. This makes the background of the Finnic word more complicated. Junttila also mentions that the Finnic word has been borrowed from another Indo-European word, from a reflex of the verbal root *ser- ‘to keep an eye on, to protect’ ([LIV: 534] s. v. *ser-), although Junttila does not specify which Indo-European language would be the most suitable origin for the Finnic verb. LÄGLOS ([I: 98–99], s. v. *herätä*) notes that earlier Koivulehto [1976] has suggested that an unattested Germanic reflex of this Indo-European verbal root could be the origin of the Finnic word, but [LÄGLOS] finds this very unlikely. According to [LIV] the root *ser- is attested at least in Indo-Iranian (Av *ni-šarharatū* ‘has to watch over’) and Greek (Homeric ὄπovται ‘watch over’, 3PL.MED, Mycenaean *o-ro-me-no* ‘watching over’⁵) and possibly in Anatolian (Lydian *sarēta-* ‘protector’, *katared-* ‘keeps watch’). In an old (Proto-)Indo-European loan a substitution Uralic *š ← Indo-European *s might occur, as a similar substitution is known from various Germanic loans [LÄGLOS I: 98–99]. If the explanation revived by Junttila is accepted, the Indo-Iranian etymology can easily be rejected, although here one has to share the criticism by [LÄGLOS]: it would certainly be preferable to be able to point out a convincing donor form from some daughter-language of Proto-Indo-European.

Etymology: unconvincing

3.1.2. *Piimä* ‘sour milk’, Est *piim* ‘milk’, also in Karelian⁶, Ingrian, Votic < ? Pre-Fi *pejmä

← Pre-II *peyHmn̥ (> PII, PI *payHman-) ‘thick fluid; milk’ > Av *paēman-* ‘mother’s milk’; derived from the PIE root *peyH- ‘to be thick; to swell’ ([EWAia II: 83–84; Garnier et al. 2017: 300]; [LIV: 464–465] s. v. *peyH-)

⁵ According to Beekes [2010: 1095–1096], the Greek word is rather from PIE *wer-, although he admits that the absence of the reflexes of ʀ (< PIE *w-) in some forms is problematic.

⁶ According to [SSA] and [EES], the Karelian word is probably borrowed from Finnish.

([Munkácsi 1901: 263, 597; Joki 1973: 302]; [SSA II] s. v. *piimä*; [EES] s. v. *piim*; [UEW] s. v. **pije-* [378] and **pād'e-* [359])

The idea of an Indo-Iranian origin of this Finnic word is old (stemming from Munkácsi), but its acceptance has varied over the years. Joki accepts the etymology with caution. The Indo-Iranian etymology of the Finnic word is also mentioned in a recent article by Garnier et al. [2017: 300]. [SSA] states that because of phonological reasons the Iranian loan etymology is less probable than borrowing from a hypothetical Baltic form **piyimas*. The phonological reason is that Finnic *ii* would be easier to explain from hypothetical Baltic **iy* than from Iranian **ay* or earlier Indo-European **ey*; this would be a cognate of the Iranian word, but this form is only hypothetical and not attested in Baltic (Lithuanian has a verb *pýti* ‘to get milk’ which is derived from the same Indo-European root ([LIV] s. v. **peyH-*), and there is also Proto-Baltic noun **peinas* ‘milk’ reflected as *pienas* in Lithuanian and *piens* in Latvian, but no corresponding noun to Indo-Iranian **payHman-* or **payHas-* is found in Baltic). The idea stems from Larsson [1984: 129–40], and this is supported also by EES, which notes also that the limited distribution of the word within Finnic points to the Baltic origin. Larsson also notes that the Avestan word *paēman-* reflects earlier diphthong **oy*, but this is not correct according to modern research; [Garnier et al. 2017] reconstruct the predecessor of the Iranian word as **peyHmn̥-*.

However, since Aikio [2014: 90–91] has convincingly argued that Finnic long *ii* can result from Pre-Finnic **ej*, cf. also [Kallio 2018: 262–263], the (Indo-)Iranian etymology does not seem improbable; the word could be a borrowing from a Pre-Indo-Iranian form which still retained PIE **e*: Pre-II **peyHmn̥-* → Pre-Fi **pejmä* > *piimä*. Junttila [2012: 275] in his survey of Baltic borrowings in Finnic casts doubt on the Baltic origin of this word because the exact Baltic source is unattested, so it seems that the Indo-Iranian etymology is clearly the best option. [EES]’s note that the word’s distribution is limited within the Finnic branch does not make Baltic origin more probable, as most of the Baltic loans also have a wide distribution, and the word is in any case attested in various Finnic languages on both sides of the gulf of Finland.

[SSA] also mentions that Mo E *péd'ams*, *pād'ams*, M *péd'ams* ‘to sieve; to milk a cow’ and Hu *fej* ‘to milk a cow’ have been considered cognates of this Finnic word in earlier research. If the Finnic word indeed reflects **ej*, the Hungarian word could be its cognate, as Hungarian *ej* could regularly reflect PU **ej*. However, according to [SSA], Finnic *-ma* would be a derivational suffix in this case, and the Hungarian form would reflect the un-derived stem. This seems possible, but the Hungarian word could also be

an early parallel loan from another Indo-Iranian form derived from the same root, namely **payHas-* ‘thick fluid’ (> Av *paiiah-* ‘milk’, OI *páyas-* id.; cf. [EWAia II: 83–84; Garnier et al. 2017: 301–302]). The Hungarian word could also reflect a later Middle Iranian form, where **a* has developed to **ä*. Róna-Tas [2017: 62–63] has recently called into question the Iranian etymology of the Hungarian word because of word-class differences: the Hungarian word is a verb, whereas in Indo-Iranian, the word is only a noun, as a different root is used to denote ‘milking’. Even though no verb ‘to milk’ is derived from this root in (Indo-)Iranian, the Baltic verb *pýti* mentioned above shows this kind of development from the root originally meaning ‘to be thick, swollen’; a parallel semantic development for this root in some Iranian language of the steppe is not impossible to imagine. The Indo-Iranian verbal root **payH-* also has attested meanings related to milk, such as Vedic *payate* ‘oozes with milk’ and Avestan *pipiušī-* ‘bringing milk’, cited by [LIV], so the semantics of the Hungarian verb should not pose a problem for the etymology. Phonologically, there are no difficulties in connecting the Hungarian and Iranian words, and it is natural to suppose that *fej* is a loanword like many other words related to pastoralism and cattle terminology in Hungarian.

The Mordvin word is a more peculiar case: [UEW] reconstructs its predecessor as **ped'mä* and suggests cautiously that it can be cognate to the Hungarian word. On the other hand, [UEW] also reconstructs **peje-* (which would be **peji-* in our reconstruction) as a possible predecessor of the Finnic and Hungarian forms. The Indo-Iranian origin is mentioned in both entries of [UEW]. The Finnic word obviously cannot be derived from a form with **δ'*. An Indo-Iranian origin for a PU form **ped'mä* would be difficult to suppose. However, it is not at all clear that the Mordvin word reflects this kind of proto-form. If Mordvin *-d'a-* is a suffix, it can be postulated that *pe-* reflects earlier **pej-*, and the *-j-* has been lost before the suffix. This seems to be the case in some other Mordvin words, such as PU **pexi-* ‘boil’ > Mo *pije-* > *pi-d'ems* [Sammallahti 1988: 539], but the exact development of the Mordvin word needs more research.

Honti [2017: 95–97] has also criticized the Iranian etymology of the Hungarian word, but without providing any detailed arguments. In Honti’s view the Mordvin and Hungarian words can be cognates, but the Finnic word cannot be connected with the Hungarian one. Again, no details are given.

To sum up, it can be stated that the Indo-Iranian origin for the Finnic word looks plausible. The Mordvin and Hungarian words probably reflect separate borrowings from Iranian.

Etymology: convincing

3.1.3. *Terni* (stem *terni-*) ‘milk of a cow that has recently given birth, colostrum’, also Est *ternes*, *ternespiim*, Votic *terne*, Lv *ter-sēmd’a* id. < ? PFi **terni*

← ? Pre-II **teru-no-*, PII **taruna-* > OI *táruṇa-* ‘young, fresh’ Av *tauruna-* ‘young; son’, Oss *tærȳn* ‘son’ ([EWAia I: 632])

([Rédei 1986: 61]; [SSA] s. v. *terni*; [EES] s. v. *ternes*)

The Indo-Iranian etymology for the Finnic word is an old idea and it is mentioned as a possibility by both [SSA] and [EES]. However, the etymology is not without its problems, and it has been criticized by Jacobsohn [1933: 138–139] already. Jacobsohn notes that it is unlikely that the Finnic disyllabic word could be derived from trisyllabic Indo-Iranian **taruna-*. Also the form *tárṇa-* is attested in Old Indic, but this is a later form that shows a Middle Indo-Aryan development, and it is impossible to derive the Finnic word from this kind of form. One could perhaps assume that syncope has occurred in the Finnic side, which would be unlikely, or that the word has simply been borrowed as disyllabic.

According to [EWAia], cognates of the Indo-Iranian word are attested in other Indo-European languages too (cf. Greek *τέρην* ‘soft, delicate’, *τέρον* ‘weak, soft’ Latin *tener* ‘soft, delicate’, if metathesized, cf. [de Vaan 2008: 613]). [EWAia] considers the connection of *táruṇa-* and the adjective *turá-* ‘sick; tender’ possible. According to [EWAia], both could be derived from the PIE root **terh₃-* ‘to grind’, *turá-* reflecting earlier **tṛh₃ó-*, cf. also [LIV: 634]. Theoretically the Finnic word could be a borrowing from some other archaic branch of Indo-European, although assuming a loan from some other branch of Indo-European would also not solve the phonological problems, and one has to note that the word does not appear in the branches such as Balto-Slavic or Germanic that have had most contact with Finnic, and the meaning ‘soft’ attested in other branches does not really fit the meaning of the Finnic words. Regarding the vocalism, Finnic **e* cannot result from PII **a*, so it might be a substitute for Ossetic-type **æ* but there are no parallel cases to such substitution. This would require more research, and the Ossetic word’s meaning is very far from the one found in Finnic. Finnic *e* could be easily derived from Pre-Indo-Iranian **e*, which would point to a very early borrowing.

Modern Finnic words reflect different forms. Finnish unaltering *istem* is likely a result of a secondary derivation, cf. **kota-j* > *koti* ‘home’. Estonian form probably continues PFi **terneš* (the Estonian *s* here can be generalized from Sandhi forms, as it is not a regular reflex of **š*). It is

difficult to judge what was the original stem-vowel in the Proto-Finnic or Pre-Finnic word.

[EES] also tentatively connects the noun to the verb *terendama* ‘shimmer’ (Fi *terhentää*), which has a possible but disputed Baltic etymology (from a hypothetical Baltic form **ster-*, postulated on the basis of Latvian *stars* ‘ray’ [Vaba 1997b]; see [SSA] s. v. *terhentää*; [Junttila 2015: 183–184] for criticism). The etymological connection of **ternV* and this verb does not look plausible because of semantic reasons.

Taking into account all the problems mentined above, the Indo-Iranian origin of the Finnic word cannot be considered as certain. The word is probably a loan, and many other Finnic terms connected to cattle breeding are Indo-Iranian loans (see *piimä* and *tiine*), so this word would also fit well into this category of borrowings.

Etymology: unclear

3.1.4. *Tiine*, Ka *tiineh* ‘pregnant’, SEst *tiinõh* (cognates also in Veps, Ludic, Votic, Ingrian and Estonian) < PFi **tiineš* < Pre-Fi **tejniš*

← PIE/Pre-II **dheHinu-* ‘pregnant (of animals)’ > OI *dhenú-* ‘cow, milking cow’, Av *daēnu-* ‘female animal’ ([EWAia I: 797])

([Kalima 1936: 169; Joki 1973: 329]; [SSA III] s. v. *tiine*; [EES] s. v. *tiine*; [Aikio 2014: 90–91])

The Indo-Iranian etymology of the Finnic word stems from Kalima [1936: 169]; the possible Baltic origin (from Baltic **deini* > Lith. *dieni*; from PIE **dheh₁-in-* [Derksen 2015: 127–8]) had been already suggested earlier by Lõo [1911: 86]. The possible relationship of the Finnic word to Mari *tüž*, *tüjâž* ‘pregnant (animal)’ [TschWB: 846] is likewise an old idea. Both the Baltic **deini* and Indo-Iranian **dhainu-* are derived from the PIE root **dheh₁-* ‘to suck mother’s milk’ ([LIV: 138] s. v. *dheh₁-*; [Garnier et al. 2017: 296]). [SSA] considers both Baltic and Indo-Iranian origins for the Finnic word possible and is uncertain about the relationship with the Mari word. Joki rejects the Mari cognate and considers the Finnic word either a Baltic or Indo-Iranian loan. Interestingly, Joki tentatively considers **tejni* a possible preform of the Finnic word. Both the possible Baltic and Indo-Iranian origins, as well as the possible relation to Mari *tüž* are also mentioned by [EES]. The Finnic and Mari words are not mentioned in the [UEW].

The uncertainty stems from the unclear background of Finnic *ii*. Recently Aikio has convincingly shown that the suggested Mari cognate *tüž*,

tüjâž ‘pregnant (animal)’ is regular because **ej > ii* is a regular development in Finnic (see above *Section 3.1.3*). Therefore, it is clear that even if this word is an Indo-Iranian loan, it was borrowed into an earlier proto-language and is not part of the words restricted to Finnic only. The Indo-Iranian origin is not at all straightforward, because the word can be also an earlier PIE loan, as it does not manifest the sound change **e > *a*. The origins of the second syllable vowel and consonants are unclear — there are no examples of **š* reflecting the PII **s* of the nominative endings. Aikio supports the obvious Indo-European origin of the Finno-Mari word, but leaves the exact donor language (Indo-Iranian or Baltic) open. This requires further study. Many other terms connected to cattle breeding and animal husbandry have been borrowed from Indo-Iranian, and this word would fit well into that group of borrowings. On the other hand, if the word was a Baltic (or Balto-Slavic) loan, it would not have to be so extremely early borrowing, as **e* would have been regularly retained there. Semantically the attested Baltic forms (Lith. *dieni* ‘with young’) are closer to the Finnic and Mari words than the Indo-Iranian words where the meanings relating to pregnancy are not attested.

It is interesting to note that Liukkonen [1999: 142–4], arguing for a Baltic etymology of the word, had already proposed similar kind of explanation for the development of the Finnic long vowel, which Junttila [2012: 278] nevertheless rejected as impossible. Now it can be stated that Junttila’s rejection of Liukkonen’s explanation was too hasty, thanks to Aikio’s new groundbreaking studies. Also [SSA] mentions that the Indo-European explanation can be correct if the Finnic word reflects earlier **ej* diphthong. However, the detailed explanation of the sound law **ej > ii* is attributable to Aikio.

Etymology: unclear (certainly an Indo-European loan, but not necessarily Indo-Iranian)

3.1.5. *Verso*, Est *võrse* ‘sprout’; verb *versoa* (also in Karelian)⁷, Est *võrsuma* ‘to sprout’

← PII **varća-* (? Pre-II **verćo-*) > OI *válšá-* ‘shoot, sprout, twig’, Av *varəsa-* ‘hair, hair on the head’; or < ← PII **vṛćša-* > OI *vṛkšá-* ‘tree’, *varəsa-* ‘a plant’ ([EWAia II: 526–527; Lubotsky 2001: 313])

([Parpola 1999: 201]; [SSA] s. v. *verso*)

⁷ The Karelian verb is possibly borrowed from Finnic ([EES] s. v. *võrsuma*).

The semantic connection of the Indo-Iranian and Finnic words can hardly be a coincidence, and on the first sight the etymology looks convincing. However, some phonological problems are involved.

The word is either a Pre-II loan where the Finnic initial syllable vowel reflects **e* of the donor language, or the root-internal *e* has to result from a substitute of Indo-Iranian syllabic **r̥* (= the vocalic allophone of the tremulant **r*), which is reflected in OI *vṛkṣá-*, Av *varəsa-* (there is no systematic study of the substitutions of syllabic resonants in Indo-Iranian loanwords).

If the Finnic word reflects Pre-II **e*, this might be a proof for an early change **l > *r* in Indo-Iranian, together with *kekri*. The Indo-Aryan word with *l* is probably secondary (see [Mayrhofer 2002] for a discussion of the Indo-Iranian sound-change **l > *r* and the apparent exceptions). If the Finnic word is a borrowing from the zero-grade form, **er* could be explained simply as a substitution of PII or PI **r̥*, and there is no reason to consider this a Pre-II borrowing and the loanword could have been acquired much later.

Kallio [2014: 160–161] has recently suggested that the vowel correspondence of Estonian *õ* and Finnish *e* continue Proto-Finnic **ĕ* (> Est *õ*), meaning that Estonian *õ* is an archaism and not a late development as was often assumed in recent research. This word could be also reconstructed as **vĕrsV*; phonetically the Proto-Finnic vowel **ĕ* could be a plausible substitution for PII **a* (or **r̥*), but there are no known cases of inherited words (i.e., older than Proto-Finnic) which would feature this vowel, and this makes the idea of deriving this word from a very old stage of Indo-Iranian problematic [Holopainen et al. 2017: 119].

The second syllable vowel also raises questions, since according to the mainstream view [Sammallahti 1988, 1999; Salminen 2002], **o* became possible only in Proto-Finnic (this view has been recently challenged by Aikio [2015b: 37–39], who reconstructs **o*-stems to Proto-Uralic). Also, words with a front-back vowel combination are usually not very old in Finnic, but if **o* is a result of a derivational suffix here, this could explain the vowel combination. The stem-final vowel in Estonian *võrse* points, however, not at *-o* but at a different derivative with Proto-Finnic **ek* or **eš*.

Despite certain difficulties with vocalism, the etymology seems convincing enough. Semantically the etymology is plausible, especially because the Indo-Aryan forms match the meaning of the Finnic word well.

Etymology: convincing

3.2. Etymologies with *a (< PII, PI *a)

3.2.1. *Ahnas*, *ahne* ‘greedy (for food)’ (cognates in all Finnic languages) < ? Pre-Fi *aćnas*

← PII **HaćHna-* (or PI **HatsHna-*) > OI *aśna-s* ‘gluttonous, hungry’, root OI *aśi-* ‘sich nähren/sättigen, zu sich nehmen, essen’ ([EWAia I: 136] s. v. *AS'*; [KEWA I: 60–61] s. v. *aśnāti*; [RIVELEX I: 595] s. v. *áśna*) ([Schindler 1963: 205; Koivulehto 1999a: 227]; [SSA] s. v. *ahnas*)

While the Indo-Iranian etymology is coherent, it is difficult to determine the exact age of this borrowing. Aikio [2015b] has stated that the reflexes of PU sibilants and affricates are hardly distinguishable in certain consonant clusters (cf. also the word **oćra* below), and this word does not have to be a specifically Iranian loan although Koivulehto assumes so. Furthermore, the Indo-Iranian root **HáćH-* is poorly attested in Iranian [de Vaan 2000: 285].

The second syllable vowels and consonants of the Indo-Iranian loans have not been systematically studied. Here, **as* seems to reflect PII masculine ending **as*, which was probably still retained by the time of borrowing. The word *ahma* ‘wolverine; greedy for food’ is probably a parallel loan, as it neatly matches the Old Indic form *aśman-* ‘eater’ (< PII **Haćman-*). Interestingly, *ahma* has a regular cognate in Saami: SaN *vuosmmis* ‘eager, greedy for food’ [Holopainen 2018: 151–152]. Komi *adžni* ‘to gulp down’, mentioned in [SSA] as a possible cognate of *ahnas*, in turn, cannot belong to this cognate set due to its irregular vocalism.

Etymology: convincing

3.2.2. *Aisa* ‘wagon shaft’, Veps (deriv.) *aižaz* id. (cognates in all Finnic languages)

← PII or PI **Hayša-* > Av *aěša-* < PIE **h₂/₃oy(H)s-* ([EWAia I: 208; Peters 1980: 95])

([Mayrhofer 1964: 185–186]; [SSA] s. v. *aisa*; [Peters 1980: 95; Koivulehto 1991: 97–98, footnote 53]; [EES] s. v. *ais*)

Although references to the possible Indo-Iranian origin of the Finnic word can frequently be found in literature (for example, Peters [1980: 95] notes that the Finnic word is borrowed from either Baltic or Iranian, and [SSA] mentions the Indo-Iranian origin as one possible etymology for

the Finnic word), it is now universally accepted that the word is borrowed from some other Indo-European language, most probably Baltic or Balto-Slavic ([Katz 1983: 118; Junttila 2016]; noted already by Lidén [1897: 60–63]). The Finnic word has to be dissociated from the words with a similar meaning in Mordvin (*ažija*) and Permic (Ud *vajjž*, Ko *vož*), as is noted by Joki [1973: 253–254] already. This view is followed by [EES], but [SSA] is ambiguous about the relationship of the Finnic word and the Mordvin and Permic ones. The latter words can be true Indo-Iranian borrowings from PII or PI **(H)aiša-* (> Av *aēša-* (dual) ‘(?) both parts of a pole’⁸; [EWAia I: 208]), although the irregular relationship of the Komi and Udmurt forms makes the reconstruction of a common Proto-Permic forms difficult and the etymology more complicated; however, this problem has to be solved elsewhere. In any case, the possible Indo-Iranian origin of the Finnic word has to be rejected, as PII or PI **ayša* (reconstructed on the basis of the Avestan word) would have given ***aiha* in Finnic.

Junttila [2012: 280] has considered also the Baltic borrowing hypothesis as dubious, because the cognate is actually missing from Baltic (it would be **aisā* or **aisa* according to Junttila), but later [Junttila 2016] has considered the word borrowed from a lost dialect of Balto-Slavic. Junttila [2016: 218–219] reconstructs the Baltic word differently from the earlier research: as **ajes*, corresponding to Slavic *s*-stem **oje*, and he assumes that the Finnic word is borrowed from the plural/collective **ajesā* or a neuter form based on it (with regular contraction of *e*). Koivulehto [2001a: 362 footnote 3] has considered the Finnic word a possible loan from Slavic **oje(s)* (see also the entry *ojas* below), but because the development **ajesā* > *aisa* the borrowing has to be early (this kind of development had to take place in Middle Proto-Finnic, cf. [Kallio 2014]), it is more plausible to assume that the Finnic word is an earlier borrowing from Balto-Slavic or some lost dialect of Baltic. As there are other specifically Proto-Balto-Slavic borrowings in Finnic (see *Section 3.3.3*), *aisa* could well belong to the same layer of loanwords.

⁸ The meaning of the scarcely attested Avestan word is uncertain, and also its exact relationship to OI *īṣā-* ‘shaft’ (<**h₁i-Hs-a-*) and its Indo-European cognates οἴξ : οἴαξ ‘Griff des Steuerruders, Steuerruder’ and Hittite *hišša-* ‘shaft’ has remained unclear [Melchert 2000: 235; Höfler 2017: 3, footnote 2]. For details on the etymology of the Hittite and Greek words, see Kloekhorst [2008: 403] s. v. ^{GIS}*hišša-* (c.) and Beekes [2010: 1052] s. v. οἴαξ.

Etymology: unconvincing (a borrowing in Finnic but not from Indo-Iranian)

3.2.3. *Aivan* ‘whole, exact’ (also in Karelian, Ludic, Votic, Estonian)

← PII **aywa-* > Av *aēva* ‘one, only, lonely, some, OI *evá* ‘so, just’ ([EWAia I: 270] s. v. *evá*)

([Joki 1973: 247; SSA I: 19])

Phonetically the etymology is plausible, and there are no semantic problems either, if the meaning ‘so, just’ was present already in Proto-Indo-Iranian. It has to be noted, however, that because of the large semantic scale of the Finnic word it is difficult to reconstruct exact meaning which makes finding a loan etymology more difficult. [SSA] also mentions a possible Germanic etymology: the Finnic word could be a borrowing from PG **aiwīna-* (> Gothic *aiweins* ‘eternal’), PG **aiwan* (> ON *ey* ‘always’). From the point of view of phonology, both sources are equally probable. The semantics of the Indo-Iranian word seems to work out better, but from the “statistical” point of view a Germanic origin would be more plausible for a word that is attested only in Finnic. LÄGLOS [I: 18–19] accepts the Germanic etymology.

In Finnish dialects and old written Finnish, there is also a word *aiva*, which is clearly connected to *aivan*. [LÄGLOS] refers to Hahmo [1988: 82], who considers the forms without *-n* back-formations.

Etymology: unclear (can also be from Germanic)

3.2.4. *Apu* ‘help’, *auttaa*, *avittaa* ‘to help’ Est *abi* (has cognates in all Finnic languages)

← PII (or PI) **HawHas-* ‘help’, root **HawH-* > Av *auuah-*, OI *ávas-* ‘help’ ([EWAia I: 132, 134])

([Koivulehto 1999a: 228])

This word displays a high level of phonetic variability across cognate Finnic languages. The word *apu* is explained as a result of the “analogical strong grade” in Finnic according to Koivulehto (a phonetically regular form in modern Finnic languages would be **avI*). Also a Germanic etymology has been assumed for the Finnic word ([LÄGLOS I: 31] s. v. *apu*): PG **auja-/awi-* > ON *auja* ‘luck; divine help, shelter’, Goth *awi-liudōn* ‘to thank’; according to [LÄGLOS] the meaning of Runic *auja* is uncertain, but it is possible that it meant ‘help’. However, Koivulehto finds the

Germanic origin much less convincing on semantic grounds (no meaning ‘help’ is certainly attested for this root in Germanic; also [LÄGLOS] notes that the meaning of Runic *auja* is uncertain). In spite of this [LÄGLOS] supports the Germanic etymology (Koivulehto’s Indo-Iranian etymology was not yet published at the time when the first part of [LÄGLOS] was published, so this possibility is not commented in the book). The second syllable *u* in some Finnic words is secondary.

Etymology: convincing (can also be a Germanic loan)

3.2.5. *Hadas, hata, hatu* ‘germ’, Adv. *hataalla* ‘to be embryonic’ (cognates in Karelian and Estonian) < Pre-Fi **šata-*

← PI **dzaHta-* a verbal adjective from the root **dzanH-* ‘to be born, to grow’ (**zanH-* in Cheung’s [2007] reconstruction) < PIE **ǵenh₁-* ([Koivulehto 1999a: 225])

This word is cited among Koivulehto’s Proto-Iranian etymologies. According to his “palatal criterion” (see [1999a: 219–220] and [2001b: 252–253]), the Proto-Iranian loanwords can be recognized by the substitution of PI **ts* and **dz*⁹ as affricate **č* in Uralic. Kallio (personal communication) has argued that the substitution in the word-initial position was PI **ts*, **dz* > PU **š*, because the Finnic *h* can only result from **š*, not **č*, according to current understanding of Uralic historical phonology (as noted above, [Aikio 2015a: 4–5] has shown that the alleged Uralic examples of the development **č* > *h* in Finnic can be explained otherwise). If the substitution is accepted, the etymology itself is unproblematic, although also a Germanic etymology for this word has been suggested (see below). There are other words manifesting the same substitution which have cognates in Mordvin or Saami, so it is unlikely that this word was a separate borrowing to pre-Finnic. Probably, its cognates in Mordvin and Saami have simply disappeared (many old agricultural terms have disappeared from Saami because of its geographical location, and this word might have been one of them).

LÄGLOS ([I: 84–85] s. v. *hata*) cautiously supports a Germanic etymology for the Finnic word family: the Finnic word could have been borrowed from North-West Germanic PG **sāda-* (< PG **sēda-*) ‘sowing, seeding’, (cf. ON *sað*) or **sādi-z* (< PG **sēdi-z*) ‘sowing, seeding’ or alternatively from

⁹ They are reflexes of PIE **k* and **ǵ* according to many, but not all Iranists: see Mayrhofer [1989: 6], Windfuhr [2009: 21].

PG **hazda-z* ‘hair on the head’ (cf. ON *haddr*; [LÄGLOS] notes that Finnic *t* would be difficult to explain from this latter form). [LÄGLOS] is also critical of the relationship between the adverb *hataalla* and the noun *hata*.

Both the Germanic (← **sēda*) and the Iranian etymology for the Finnic word are convincing, so it is difficult to decide which one is more plausible.

Etymology: convincing

3.2.6. **Iha* ‘life force, joy’, Fi *ihana* ‘wonderful; (dial.) healthy, blooming’, dial. and Karelian *ihala* ‘dear’, *ihastua* ‘to fall in love; (dial.) to bloom, to revive’ < Pre-Fi **iša* ([SSA I] s. v. *iha*)

←PII or PI **(H)iš-* > Av *iš-* ‘force’, OI *iš-* ‘drunk; refreshment; life force’ < PIE **h₂ey_s-* ([EWAia I: 98, 271])

([Tunkelo 1913: 99–100; Koivulehto 2001a: 367–368; Rintala 2003: 306–308])

According to Koivulehto, there are two homonymous words *iha* in Finnic languages, which have different etymologies (*iha* discussed here appears in Finnish and Karelian, see below for the other word). [SSA] considers both of them as one word, and so does [EES], but Rintala [2003] in her comprehensive study of the Finnic *iha* words accepts Koivulehto’s conclusions. Koivulehto reconstructs the meaning of this **iha* word as ‘life force, joy’. The borrowing from a form **Hiš-* looks plausible, and also all the semantic variants of the Finnic word can be derived from this. The Finnic *h* (< **š*) reflects either PII or PI **š*, a result of the so-called RUKI change (= *s* becomes **š* after *r*, *u/w*, *i/y* and *k*; [Mayrhofer 1989: 8]).

Rintala has also assumed that *ihana* could be a separate borrowing from an unattested Indo-Iranian adjective derived **išana* from the root *iš*, because it would be difficult to explain the exact derivational process of the Finnic adjective from **iha*. As there is no trace of an Indo-Iranian adjective of the type **išana*, this explanation has to be rejected as too speculative, even if Rintala is right about the difficulties concerning the history of the Finnic adjective *ihana*.

Rintala [2003: 296–297] also mention that Moksha Mordvin *ežâlgâdâms*, *ožâlgâdâms* ‘to rejoice’ has been connected etymologically with the Finnic word in earlier research, but the relationship is uncertain because of the phonological irregularity. Further research can show whether the Mordvin word could be a separate borrowing from the Iranian root mentioned above.

Etymology: unconvincing (not a separate borrowing from Iranian, but related to Estonian *iha*)

3.2.7. Est *iha* ‘yearning, passion (Vorlangen, Begierde)’, Finnish *ihastua* ‘take a fancy to something, be overjoyed with something’

← ? PII **Histsā*- < PII **Hisčā*-, cf. OI *icchā*- id.; root *eš*- ‘suchen; wünschen, begehren’, Praes *icchá*- < PII **Hayš* or **HayšH*¹⁰ < PIE **h₂eyš(H)*; OI root-noun *iš*- ‘Labung, Kraft, Opfergruss’ < PII **Hiš* ([EWAia I: 270–271] s. v. *EŠ*!; [Cheung 2007: 158])

([Tunkelo 1913: 99–100; Koivulehto 2001a: 365–366; Rintala 2003: 306–308])

Koivulehto argues that the word is etymologically different from the North Finnic **iha*, and is also borrowed from a different source. [EES] accepts the etymology, and considers this *iha* word the same as the one mentioned above (also [SSA] considers the two words one, see above).

Koivulehto assumes that this particular word family is borrowed from PI **istsā* (= OI *icchā*) as Pre-Finnic **ičā*. However, *iha* can only result from earlier **iša*, not **ičā*. On the other hand, it is unlikely that PI **sts* in word-internal position would result in Pre-Finnic **š* or **č*. Because of this phonological difficulty, it is more likely to consider the Finnic *iha* with various meanings as one word and not two, although the semantic differences between the various derivations of the *iha* word are admittedly large. [SMS] gives only one headword *iha* ‘lust; wish’.

Etymology: the Indo-Iranian etymology is convincing, but the word is identical with the other *iha* word

3.2.8. *Ihta* (dial., obsolete) ‘lust, eagerness’, *ihan*, dial. *ihran*, *ihlan* (< **ihtan*) ‘just, quite’

← PII/PI **Hišta*-, cf. OI *išta*- ‘wished, desired’ ([EWAia I: 270–271] s. v. *EŠ*!; [Cheung 2007: 158])

([Koivulehto 2001a: 366–367; Rintala 2003: 396–308])

According to Koivulehto, this Finnic word reflects an Indo-Iranian participle (= verbal adjective) form **Hišta*-. The etymology is plausible, although the Finnic word is a simple noun. It is, however, strange that the word is present only in Finnish (and in no other Finnic language). Because of the cluster *ht*, the word cannot be a regular derivation of the Indo-Iranian loanword *iha* (of which see above), but it is more probable that it is a separate borrowing like Koivulehto assumes.

Etymology: convincing

¹⁰ About the possible *seš* root, see [RIVELEX] s. v. with references.

3.2.9. Est *isu* ‘appetite’ (PFi **iso* ‘hungry, greedy’);
in Ingrian, Finnish attested in the verb *isota*

← Iranian **(H)isa-* ‘to seek, to pursue, to want’, cf. Av *išəmna-* ‘seeking’, *isaite* ‘he/she pursues’, cf. OI *icchāti* ‘seeks, wishes’ < PII **Hiššća*, root **Hiš* ([EWAia I: 270–271])

([Koivulehto 2001a: 359–362])

If this etymology is correct, it is among the latest possible Iranian loanwords in Finnic because **s* in the Avestan word reflects PIE **sk* or **sk̥* (> PII **śc*, see [Kobayashi 2004: 67–74]), and if the word was Proto-Iranian or older, we would expect a different substitution here (in Proto-Iranian the word was probably **istsa-*, and this would have likely resulted in Pre-Finnic **iča*, not **isa*). Therefore, the word can belong to the same loanword layer as other relatively late loans like *vasa* and *varsa* [Koivulehto 1999a: 226–227]. The Iranian donor form is etymologically related to the original of *iha* (see Section 3.2.7 above).

Semantically, the Iranian and Finnic words match well. There is no alternative etymology for this Finnic word, so the Iranian loan hypothesis is a reasonable option. All of the attested Finnic words point to second-syllable **o* in Proto-Finnic already, the origin of which remains unexplained. It can result from a later derivation; however, Aikio [2015b: 37–39] suggested that **o* would have been possible in the second syllable already in Proto-Uralic, contrary to this general view. As noted by [Holopainen et al. 2017: 117], there is no explanation to why the Iranian *a* was substituted by *o* in this word, but in spite of this the etymology can be considered as convincing.

Etymology: convincing

3.2.10. *Isäntä* ‘master’ (cognates in all Finnic languages)

← PII (or PI) **(H)ičāna-* > OI *īšāna-* ‘ruling, dominating’ (medium present participle from the verb *īš-*; [EWAia I: 207]), Av *išāna* ‘ruling over something’

([Tunkelo 1913; Koivulehto 2001a: 372–371])

Koivulehto attempts to prove *isäntä* as an Iranian borrowing and not a derivation of Finnic *isä* (< PU **ičä*, which in itself is a PII borrowing from **(H)ič-* ‘master, lord’ according to him). This idea is based on an earlier etymology by Tunkelo (see below). Koivulehto considers **isänä* as the original Finnic form, and *isäntä* would be secondary. He presents other words with *n ~ nt* variation, such as *sarana ~ saranta* ‘Türangel’, *sarvena ~ sarventa*

‘Hüftbuckel’. *Emäntä* ‘mistress’ would have been analogically formed from *emä* ‘mother’. However, the problem is that the word *isäntä* manifests no *n* ~ *nt* variation, so it is dubious to suppose ***isänä* as an original form.

Koivulehto mentions that Tunkelo [1913: 115–118] had already suggested an Iranian origin for this Finnic word. However, the postulated origin would have been an active present participle **isant-* ‘besitzend’ < PII **içant*, which is unattested in Indo-Iranian languages.

It seems difficult to determine whether this word is a real derivation or an Indo-Iranian loan. Historical derivational processes are not well-studied in Uralic etymology. Therefore, we do not know the processes leading from *isä* to *isäntä* or *emä* to *emäntä* well enough to choose between the competing etymologies.

Etymology: uncertain

3.2.11. *Jäädä, jää* ‘to stay, remain’ (cognates in all Finnic languages)

← Pre-II **gégheH-*, root **gheH-*, > OI *jáhāti* ‘leaves, rejects’, root *hā-* ([EWAia II: 813–814] s. v. *HĀ*)

([Koivulehto 1999a: 218–219])

This etymology is almost certainly incorrect. First of all, there are hardly any convincing examples of the substitution **gh* → **j*. If Proto-Indo-European **gh* was still retained in the language from which the word was supposedly borrowed, there is nothing that would make it Indo-Iranian (note that Koivulehto’s “Pre-Indo-Iranian” reconstruction **géghe* is impossible, as Grasmann’s law — the despiration of the first aspirated stop in a word that contains too aspirated stops — could not have operated this early). A possible parallel case is PU **aja-* ‘to drive’ (> Fi *ajaa* etc.), a loan from PIE **h₂ag-* ‘to drive’.

The vowel substitution is also unexpected, as Koivulehto remarks himself: Koivulehto assumes that **je* was impossible in early Uralic, and that this is the reason why the word was borrowed as **jä-*; however, recent research has shown that **je-* was in fact possible (see, for example, [Aikio 2015a]).

Etymology: unconvincing

3.2.12. *Marras* : *marta-* ‘dead’ (cognates in Karelian and Estonian)

← PII/PI **marta-* ‘dead’ > OI *márta-* ‘mortal, human’ (< ? PIE **morto-*) ([EWAia II: 318–319, 327]) or

← PII/PI **mṛta-* > OI *mṛtá-* ‘dead’, verbal adjective from the root *mar-* ‘to die’ ([EWAia II: 318–319, 327])

([Mikkola 1902: 72; Joki 1973: 280–281; Katz 1983: 174–177; Koivulehto 1999a: 228–229]; [SSA] s. v. *marras*)

This is a traditionally well-accepted etymology, although there is no consensus on the exact Indo-Iranian donor word of the Finnic word. Koivulehto supports the noun **marta-s* as the original, whereas [SSA] mentions only the zero-grade verbal adjective **mṛta-*. In either case, the explanation is plausible both phonologically and semantically. **martas* is derived from the Indo-Iranian root **mar-* (< PIE **mer-*) which means ‘to die’.

A parallel borrowing from the same source (probably from a zero-grade form **mṛta-* ‘dead’ < PIE **mṛto-*¹¹) is PU **mertä* > Mo *mir’d’e*, Ko *mort*, Ud *murt* ‘man’ [Koivulehto 1999: 228–229]. The Finnic word could also be a separate loan from this *-to-* verbal adjective (with a different substitution of syllabic **r̥*), but it is difficult to prove this. Both **martas* and **mṛtas* could equally well result in Finnic **martas*. Also semantically both forms are suitable. In any case, the Indo-Iranian origin of the Finnic word is obvious.

Häkkinen [2009: 23–24] has erroneously considered Finnic **martas* and Mordvin *mir’d’e* cognates (Häkkinen attempts to establish a group of words in which Finnic *a* corresponds to Mordvin *i*, but all the examples can be explained otherwise; see the entry *vasara* below), and parallel borrowings is the only possibility to explain the relationship of these words.

Etymology: convincing

3.2.13. *Niska* ‘neck’ (cognates in Ka, Lu *nišk[e]*, Ve *nišk*, Vo, Lv)

← PIA (?) **niška-* > OI *nišká-* ‘a golden ornament for the neck’ ([EWAia II: 48])

([Blážek 1990: 41; Parpola 2005: 47])

This etymology has been suggested separately by Blážek and Parpola. The etymology is one of the weakest in this group. The etymology manifests

¹¹ Koivulehto notes that there is no need to suppose a Pre-II **merto-* as the pre-form of the substantive **marta-* to explain the origin of PU **mertä* (from which the Mordvin and Permic words); EWAia [II: 327] refers to Katz [1983b], where this kind of explanation is found (cf. also now [Katz 2003: 123]). The PII form **marta-* probably reflects PIE *o*-grade noun that is attested in Greek *μορτός*, *μόρτος* [Beekes 2010: 242–243, 969], and thus the zero-grade **mṛta-* is the most probable origin for Uralic **mertä*.

both semantic and phonological problems. First of all, the Finnic word should reflect the Indo-Iranian RUKI change $*s > *š$, and this would result in a Finnic word like $**nihka$. Parpola [2005: 47, footnote 313] also notes that Jorma Koivulehto has rejected the etymology in personal communication because of this phonological problem. The sibilant $š$ in Veps and Ladic has to be secondary from earlier $*s$.

Also the semantic development is not straightforward. While names for body-parts can be borrowed (cf. Finnic $*kakla$ ‘neck’ < Baltic $*kakla$), this word would suggest a word meaning ‘necklace’ to be borrowed first, and a later metonymical change of the meaning into ‘neck’. Blážek suggests that ‘neck’ might have been the original meaning of the Indo-Aryan word, which is hard to prove. EWAia [II: 48] considers the background of the Indo-Aryan word unclear. Since the word does not have cognates even in Iranian, it is dubious whether this is an Indo-Iranian word at all, or whether the Indo-Aryan word is a loanword from some unknown source. It is best to reject the etymology altogether.

Etymology: unconvincing

3.2.14. *Ohra* ‘barley’, dial. *otra*, Karelian *osra*
(has cognates in all Finnic languages) < PFi $*ocra$

← PI $*(H)atsra-$ or PII $*(H)áčra-$ ‘sharp’, from root $*(H)áč-$ ‘sharp’, cf. OI $ašra-$ id. < PIE $*h_2eḱ-$ ‘to be/become/make sharp’ ([LIV: 261])
([Kallio 2012: 231, footnote 9])

A Proto-Baltic origin $*aštra-$ has been suggested for this word ([SSA II] s. v. *ohra*), but Kallio [2012] considers the word Iranian because of phonotactic reasons. A cluster $*str$ would be impossible or at least atypical in Proto-Finnic, and Iranian $*atsra-$ would yield $*ocra$ in Finnic, a more plausible form for Proto-Finnic reconstruction. However, since the development of consonant clusters is poorly known, the dating of the borrowing is difficult. This and the other words reconstructed with $*cr$ have a lot of variability in different Finnic languages. It is unlikely that the cluster $*čr$ existed in Pre-Finnic, so this word could also be a loan from PII $*áčra-$.

If the loanword is indeed Iranian, it shows that the substitution $*o \leftarrow *a$ was used in both later Iranian and earlier Proto-Indo-Iranian loans (for the examples of Proto-Indo-Iranian loanwords manifesting this substitution, see [Koivulehto 1999a]).

Etymology: convincing

3.2.15. Est *oide* ‘grass root’, dial. *õidad*, *uit*
(no cognates in other Finnic languages)

← PII **waida-* > OI *vedá-* ‘a bunch of grass’ ([EWAia II: 581]) or

← PII/PI **waita-* > OI *vetása-* ‘Calamus Rotang or a similar cane’,
Av *vaēiti-* ‘willow’, Oss *wīdag*, *wedagæ* ‘root’ ([EWAia II: 578–579])
([Blážek 1990: 41])

This word is attested only in Estonian and is rare also there (the word is not found in [EES]), which makes its old age unlikely. The vowel relations between the various Estonian dialects are irregular, which further makes it difficult to assume that the word is old. Although there is no good competing etymology for this Estonian word, the Indo-Iranian etymologies supposed by Blážek do not seem convincing. The first Indo-Aryan word is of unclear background according to [EWAia], and it is methodologically suspicious to assume that these isolated words in Estonian and Sanskrit would be etymologically connected, especially because it is impossible to reconstruct a regular Proto-Finnic predecessor for the Estonian word.

The other Indo-Aryan word (*vetásah*) has also cognates in Iranian and it goes back to PIE **wey(H)-t-* (from the root **wey(H)-* ‘to bind, to twist’), which is reflected also by Germanic words for willow, such as German *Weide* ‘willow’, Old High German *wīda* and Old Norse *vīðir* ([EWAia]; [Kluge 2012] s. v. *Weide*). The more credible Indo-European etymology of this Indo-Aryan word means that the word existed in Proto-Indo-Iranian already, and assuming that this word was borrowed into some early form of Finnic is less troubling. However, because of the phonological difficulties mentioned above, this explanation is also unlikely. Note that the Germanic words reflect zero-grade forms of the IE root (PG **wīþja/ō*, **wīþig*), making also a loanword from Germanic to Finnic unlikely (the Germanic words are also semantically rather far from the Estonian word).

Etymology: unconvincing

3.2.16. *Oja*, *ojas* ‘shaft of plough’ (cognates in Ludic and Veps)

← PII ? ([SSA II] s. v. *ojas* gives a PII reconstruction **ojas*, which is impossible)

This Finnic word is probably of Indo-European origin, but more likely not from Indo-Iranian. The reconstructed Proto-Indo-Iranian form **ojas* given by [SSA] is impossible: to begin with, there was no **o* in PII, and this reconstructed sstem is also formally incorrect and cannot be the preform

of OI *īṣā-* nor Av *aēša-*; the attested Indo-Aryan form mentioned by SSA, OI *īṣā-* ‘shaft’, is the same that is treated in connection with *aisa* above. The reconstruction of the Indo-European word is known to be difficult: the Indo-Iranian word has cognates in Anatolian (Hittite *hišša-*) and Slavic (see below). Höfler [2017] has recently discussed this Indo-European word in detail. However, regardless of the exact relationship of the Indo-European words, the precursor of the Indo-Iranian forms cannot be the source of the Finnic word.

[SSA] also mentions the Slavic word **oje* ‘shaft’ (which is a cognate of the Indo-Iranian word and actually reflects the form reconstructed by [SSA]: more precisely the Indo-European predecessor of the Slavic word can be reconstructed as **h₃eyH-e/os-* [Peters 1980: 95]), and it seems plausible to consider the Finnic word as a Slavic borrowing. Koivulehto [2001a: 362, footnote 3] has also suggested that Finnic *aisa* could be a borrowing from this same Slavic source (however, he also considers the substitution of Slavic **o* by **a* as problematic). If *aisa* is a Baltic or earlier Balto-Slavic loan, *ojas* could easily reflect the Slavic cognate of the word. According to [SSA], a Russian etymology has been presented for the word earlier, but no details are given. The word is rare in modern Russian, but it is attested in dialects. Because of the limited distribution of the word in Northern Finnic, it seems probable that we are dealing with a relatively late Slavic (Russian) borrowing.

Etymology: unconvincing (not Indo-Iranian)

3.2.17. Karelian, Veps *ola* ‘flint’

← ? PII **al-*, cf. OI *aṣṭhīlā* (? **al-s-thī-*) ‘ball, round stone, flint’ ([EWAia III: 19])

([Vilkuna 1933: 160–162; Joki 1973: 294]; [SSA] s. v. *ola*)

As mentioned by [SSA], this Finnic word has been also connected with Baltic (from Proto-Baltic **ōla*, cf. Latvian *uola* ‘a small stone; egg’), and this origin seems more probable. Indo-Iranian loan etymology is unlikely and lacking enough substance for comparison. EWAia [III: 19] only briefly mentions the word *aṣṭhīlā*, the background of which is considered unclear. Lidén [1897: 83–85] assumed that the Sanskrit word is an old compound/derivation from **alsthī-*, and the first syllable would correspond to Baltic **ōla*. This explanation is not mentioned by [EWAia], but in [KEWA] Mayrhofer considered Lidén’s explanation unlikely, as is cited by Joki [1973: 294].

According to Grünthal [2012: 312–313], Mordvin *al* ‘egg’ is also a loan from the same Baltic word. According to Grünthal, the Baltic word could have been borrowed already into a common proto-language of Finnic and Mordvin, but this is unlikely due to the irregular relationship of the two words. The Mordvin word could reflect earlier **a-a*, **j-j* or **j-a* stem, whereas the Finnic word can only reflect earlier **o-a*. The Baltic origin of the Mordvin word needs more detailed research. Kildin Saami *vue’ll* is probably borrowed from Karelian, as [SSA] suggests.

Regarding the etymology of the Baltic donor word, it is interesting that Derksen [2015: 481] does not provide any Indo-European cognates for the Baltic word, and seems to doubt even the Proto-Baltic origin of the Lithuanian and Latvian words. The borrowing of the word from Baltic to Finnic and Mordvin would, of course, support its presumed existence in Proto-Baltic, if the Uralic and Baltic words are not parallel borrowings from a third unknown source.

Etymology: unconvincing

3.2.18. *Paksu* ‘thick’

(has cognates in Karelian, Veps, Ludic, Votic, Estonian)

← PI **badzu-* > Av *bəzuuant-*, OI *báhu-* ‘thick, large’ ([EWAia II: 220–221])

([Koivulehto 1999a: 220–221; 2001b: 251])

This etymology is one of the few cases in which Koivulehto assumes a substitution **dz* → **ks*. This presumed sound substitution has its problems, as it is supported by very few etymologies only, and some of these etymologies are problematic. However, this particular etymology seems correct, in spite of these questions about the substitution pattern. The semantic correlation is almost exact, and even the Finnic *-u* seems to reflect the second-syllable *-u* of the Iranian word. Usually Finnic second-syllable labial vowels are considered late (of the Proto-Finnic stage). If the substitution **u* > **u* is correct, it would mean that the second-syllable **u* was possible already at the time of the contacts with Proto-Iranian. However, since there are no other cases of such substitution, the question of the age of **u* has to be left for further research (see [Holopainen et al. 2017] for some more detailed considerations on the development of **u* in non-initial syllables).

Etymology: convincing

3.2.19. *Peijas*, *peijaiset* ‘a drinking feast, funeral’,
 Karelian *peijahat*, *peijahaiset* ‘feast in honour of a killed bear’,
 Estonian *peied* ‘funeral’, Livonian *peijed* id. < PFi **peijas*

← ? Pre-II **paHiya-* > PII **paHiya-* ‘drink’ > OI *-pāyya*¹², *-peya* ‘drink’,
 in compounds: *pūrva-pāya* ‘first drink’ ([EWAia II: 113] s. v. *PĀ*)

([Koivulehto 2005: 329–332])

Koivulehto’s etymology is plausible. Semantically the attested Indic words match the meaning of the Finnic words well, as the general meaning of feasting can easily be derived from a ‘drinking feast’. There are some intriguing questions about vowel substitution though; Koivulehto considers the word as a loan from PII proper, and the Finnic *-ei-* would reflect the “sporadic” sound change **ai* > **ei* which has happened in a number of Finnic words. However, here Koivulehto is on the wrong track, as he fails to see that this change is not Proto-Finnic, but affects only certain Finnic languages, viz. every language except for Livonian and South Estonian. Kallio [2014: 159–160] has considered this sound change a “Gulf of Finland Finnic” innovation, meaning that this change happened in the predecessor of all the Finnic languages other than South Estonian and Livonian, which had already branched off at this point. Kallio (p. c.) further remarks that because the change was more precisely **ai_a* > **ei_ä*, the expected outcome would be **peijäs*, not **peijas*.

It is thus clear that because this word is found also in Livonian, the *ei* diphthong has to be original, not the result of the sound change described above. This means that the word could not be borrowed from Indo-Iranian proper, but it has to be either a Pre-Indo-Iranian loan or borrowing from a cognate of the Indic words in some other Indo-European language. Koivulehto notes that Ritter had already before him considered the Finnic word a borrowing from a hypothetical Baltic form **pa(i)yas*, but Koivulehto rejects this explanation because this kind of formation is not attested in Baltic. It seems that the Indo-Iranian etymology is clearly the best option, although this means that the borrowing has to be very early. Another option is to consider the Livonian word borrowed from Estonian, which has regularly been affected by the sound change **ai* > **ei*.

Etymology: convincing

¹² Koivulehto notes that the Sanskrit form with long *ā* is probably secondary and influenced by the long vowel of the verb *pāti* ‘to drink’.

3.2.20. *Perna* ‘spleen’, Est *põrn* and regular cognates
in all the other Finnic languages < PFi **perna*

← PI **sprdza-* > Av *spərəzn-*, *spərəna-* ‘spleen’ (cf. OI *plíhan-* id.)
([EWAia II: 196–197] s. v. *plíhan-*)

([Koivulehto 2003]; [EES] s. v. *põrn*)

This is one of Koivulehto’s etymologies which have not been published in print, but this etymology can be found in [EES]. There is no other convincing etymology for this Finnic word: Liukkonen [1999: 104–105] has attempted to derive the word from Baltic **spernā* ‘wing’, but this is unconvincing because of the semantics. Semantically Koivulehto’s explanation is obviously convincing. Problems with phonology occur mainly because of the *ō* in the southern Finnic languages: as noted above in the case of *verso*, the vowel correspondence Fi *e* – Est *ō* derives from PFi *ē*.

The precise reconstruction of the Indo-Iranian word is unclear because of the long *ī* in Indo-Aryan, but the Avestan word regularly reflects earlier **sprdza-* (<**sprdza-*). According to [EWAia] the word has a secure Indo-European etymology, as Latin *liēn*, Greek *σπλῆν* and Slavic (Serbo-Croatian) *slězena*, all with the similar meaning ‘spleen’. However, Beekes [2010: 1384–1385] states that no common proto-form for the words in various Indo-European branches can be reconstructed. The *l* in Indo-Aryan words is probably secondary.

Etymology: convincing

3.2.21. *Sammas* : *sampa-*, Vo *sammaz*, Est *sammas*,
arch. *sambas* < PFi **sampas* ‘pillar’

← PII **stamb^has* ‘pillar’ > OI *stamb^ha-* ‘pole, pillar’, from the root *stamb^h-* ‘befestigen, stützen’ < PIE **stemb^hH-* ([EWAia II: 753–754])

([Kalima 1933: 128; Uotila 1973: 7; Koivulehto 1999a: 230]; [SSA] s. v. *sammas*; [Parpola 2006])

The etymology is convincing, **st* > **s* is a plausible substitution which has parallels in other early Indo-European loans in Finnic [Junttila 2015: 171]. Uotila has also suggested a different Indo-Iranian etymology, **śamba-* ‘Stange, Keule etc.’, but it is no more convincing than the earlier one. Phonologically both suggested Indo-Iranian forms are suitable origins for the Finnic word, but the formation **śamba-* is attested only in Indo-Aryan and does not have a solid Indo-Iranian etymology, although it probably is derived from Indo-Iranian root **śam-* ([EWAia II: 612–613])

s. v. *śamba-*, *śamyā-*). The Indo-European root **stemb^hH-* is reflected also in the Iranian branch (Av *staβra-* ‘strong, solid’, MP *stabr* ‘strong, big’), although a noun corresponding to OI *stamb^ha-* is not found there. Phonologically there is nothing to force us to think that the word is borrowed into Pre-Finnic from Proto-Indo-Iranian already, but its non-attestation in Iranian could point to this kind of conclusion.

Nuutinen ([1987: 55–56]) and following him Koivulehto [1999b] have also considered Baltic **stamba-* (> Lithuanian *stamba* ‘stem of a plant’) as the source of the Finnic word; in particular, Koivulehto argued that the Baltic word could have had a more general meaning in the prehistoric past. This is possible, but it does not make it preferable to the Indo-Iranian etymology. Later Koivulehto [1999a: 230] himself has also considered the Finnic word as a Baltic borrowing.

The word *sampo* ‘a mythological mill in Finnish folklore’ is a derivation from *sammás* according to [SSA]. SaN *cuobbo* ‘frog’ has been connected to this Finnic word, but the resemblance is probably accidental (viz. [Holopainen 2018: 142–146]).

Etymology: convincing

3.2.22. *Sammua* ‘to be extinguished’ (also in Karelian, Lydic, Veps, Votic)

← **ćamH-* > OI *śam-* ‘to be calm, to be exhausted, to be extinguished’
([EWAia II: 610–611])

([Parpola 2010: 313])

Parpola’s etymology is plausible, as both the semantics and the phonological correlations are satisfactory. However, according to [Koivulehto, Kallio 2016] the Finnic word could also be derived from Proto-Germanic **stammian-* ‘to stop, staunch, stem’. Koivulehto and Kallio also remark that Parpola’s etymology is likewise credible, but because of the distribution in only Finnic, the Germanic origin would be more likely. Nevertheless, some other convincing Indo-Iranian etymologies involve a similar sound substitution, and because also the semantics fits perfectly, there is no compelling need to reject the Indo-Iranian loan etymology of Parpola, and it is difficult to decide which etymology is better.

Aikio [2014: 88–89] has suggested the same Indo-Iranian origin for the Uralic word **śoma* (> Mo E *šumorđ’e-*, Mari *šuma-* ‘become tired, languish’, Ud *šuma-* ‘be hungry’, Hu *szomorú* ‘sad’, *szomjas* ‘thirsty’ etc.).

This etymology is convincing, but the Finnic verb cannot be derived from this Proto-Uralic noun.

Etymology: convincing (can also be a Germanic loan)

3.2.23. *Sarajas* ‘mythological river in the land of the dead’ (only in old folk poetry, not found in other Finnic languages)

← Iranian **zraya-* (= Proto-Iranian **dzraya-*) > Av *zraiaih-*, OP *drayah-* ‘sea’ ([EWAia I: 606–607] s. v. *jráyas-*)

([Setälä 1912: 189; Jacobsohn 1922: 122–123; Joki 1973: 151; SSA] s. v. *sarajas*; [Häkkinen 2009: 22])

The Iranian etymology for this Finnic word is an old idea (first suggested by [Setälä 1912]), which suffers mainly from the fact that the word is a hapax in Finnic poetic language. If the etymology were correct, it should be a relatively late borrowing, because the Finnic *s* probably reflects the Avestan-type *z*, not PI **dz* or PII **jh* (< **ǵh*), so the loan would be later than Proto-Iranian (comparable to such cases as *iso* or *vasa*). Also semantically only the Iranian words could come to question, as the meaning ‘sea’ is attested only there. In the Vedic cognate *jráyas-* the more original meaning ‘the edge’ has still been retained. The Indo-Iranian word belongs to the root **jray-* ‘to stretch oneself’, which is of unclear origin according to EWAia. The substitution of **zr* in Finnic would be interesting because of the epenthetic *-a-* in the consonant cluster. Usually word-initial consonant cluster is simplified in loans in a way that one of the consonants is dropped.

The word belongs to old mythological vocabulary, so it could have fallen out of use later, and many other words linked to mythology, such as *jum-ala* ‘god’ and *taivas* ‘heaven, sky’ also have Indo-Iranian etymology, but because of the very scarce attestation one really cannot say anything certain of this etymology.

Komi *sarid’ž* ‘sea’, Udmurt *zarid’ž* ‘sea; a warm (southern) region where birds migrate for winter’ are probably true borrowings from this Iranian word (this was established already by [Munkácsi 1851: 382]). Setälä attempted to connect the Finnish word to these, but the relationship of the Permic and Finnic words is irregular and these words cannot be considered as true cognates. Recently Häkkinen has tried to connect the Finnish word to other Permic words, but without offering any new convincing arguments to overcome the phonological irregularities involved: Komi *šor* and Udmurt *šur* ‘river, brook’. Häkkinen considers all of these words,

as well as Hungarian *ár* ‘stream’ and Khanty **lār*, Mansi **tūrə* ‘lake’ (< POUg **θēra* [cf. Zhivlov 2006]) loans from PII **saras* (< PIE **selos*), but this is unlikely: the Komi and Udmurt words are derived from PU **šerä*, which is also the source of Hungarian *ér* ‘stream’. In no way can Finnish *sarajas* be regularly related to these words, and Häkkinen mistakenly assumes that Avestan *zrayah-* is related to this Indo-Iranian word. It remains open whether PU **serä* is borrowed from a Pre-Indo-Iranian form **seros*. Koivulehto [1999a: 215] has derived the Hungarian and Ob-Ugrian words from PII **saras*, and this is a convincing etymology with no phonological problems.

Etymology: unconvincing

3.2.24. *Suoda*, *suo-* ‘to grant’, Votic (der.) *sōvia*
and Est (der.) *soovida* ‘to wish’ < PFi **soo-*

← PII **suw(H)-a-*, OI *suvāti* ‘to put into motion’, *sav-* ‘to drive’ ([EWAia II: 715–716]; [LIV: 538] s. v. **sewh₁-*)

([Koivulehto 1999a: 230])

Koivulehto’s etymology is semantically possible: the meanings of the Finnic verb (‘to grant; to wish’) can be derived from meanings that have been attested in Old Indic, but because of the wide-ranging polysemy of the verb, it is very difficult to reconstruct all the meanings of the verb to Proto-Indo-Iranian. It is obvious that the original meaning of the Indo-Iranian root was ‘to put into motion’, as this meaning is also attested in its Indo-European cognates, and this is reconstructed as the meaning of the PIE root by [LIV].

Morpho-phonologically this tentative loan is an interesting case, since here the Finnic word seems to reflect a zero-grade rather than a full-grade form. Because of Ablauting Indo-Iranian verbs, it is often theoretically possible to derive loanwords from several different forms, which make the loan etymologies less credible. Because not many verbs have been borrowed from Indo-Iranian to Uralic, it is very difficult to evaluate this etymology comparing it to parallel examples. A systematic study of the different Ablaut grades in Indo-European loanwords would be an important task for Uralic etymology.

Here one has to note that the zero-grade **suH* could have been borrowed as such also from some other branch of Indo-European, not necessarily from Indo-Iranian.

The problem of the background of the Finnic long vowels has been explored since Koivulehto, especially by Aikio [2012a; 2015b]. Koivulehto compares the development of vowels in this word to the word *juo-* ‘to drink’ (< PFi **joo-*), but according to Aikio [2015: 65b], the vowel correspondences of *juo-* and its Uralic cognates are contradictory (it is unclear what the initial-syllable vowel in Proto-Uralic was), so it seems that we do not know precisely what kind of Proto-Uralic stem the Finnic word actually reflects; thus the verb *juo-* cannot be used as a parallel to the vowel developments in *suo-*.

In [UEW] and [SSA], Komi *śi-* ‘to promise, to wish’ is connected etymologically to the Finnic word, but this is unlikely because the Komi and Finnic vowels cannot be derived regularly from a common PU source.

The verb *suvaita* (: *suvaitse-*) ‘to tolerate’ (in Karelian ‘to love’) is probably a derivation from the same stem, but the fact does not affect our evaluation of the Indo-Iranian etymology.

Etymology: unclear

3.2.25. *Syteä* ‘to hit’, *syttyä* ‘to set on fire’ (cognates in all Finnic languages)

← Pre-Iranian **tsewč-* ([Cheung 2007] **sauč-*), cf. Avestan *saoc-* ‘to burn’ ([EWAia II: 655–656] s. v. *ŠOC-*)
([Koivulehto 1999a: 223–224])

The same root is manifest in Fi *huhta* < **šukta* < PI *tsuxta* (see Section 3.3.2). Koivulehto’s etymology for *syteä* and *syttyä* involves phonological problems. The diphthong **ew* cannot be regularly simplified to Finnic **ü*, compare the well-known cases PU **lewli* (> Fi *lölyly*) ‘spirit, steam’ [Sammallahti 1988: 545] and PFi **kewhä* (> Fi *köyhä*, Est *kehv*) ‘poor’ ([SSA] s. v. *köyhä*), where the diphthong is retained. This etymology, therefore, has to be rejected. It is also one of the examples where PI affricate would be reflected as Finnic *s* in Inlout. There are very few cases like this, so the whole substitution rule might be wrong.

The Finnic **ü* could, however, reflect PI **u*, as there are examples of such substitution in other Indo-European loans. Therefore, the Finnic word could reflect a zero-grade form (**suč-*) in Iranian. In Old Indic there are zero-grade forms such as *śuc-* ‘flame’ and *śuci-* ‘gleaming’. If the Finnic word was derived from such a form there would also be no need to suggest a “Pre-Iranian” origin, as the Finnic *s* could simply reflect later Iranian *s* and not PI **ts* (or theoretically even PII **č*). While there are few examples

of Iranian *s* in Finnic loanwords, the prehistoric post-PI steppe languages clearly had *s* and *z*, like Avestan and the majority of Iranian languages.

Semantically it is problematic that the verb *syteä* simply means ‘to hit’, and *syttyä* looks like a derivation from this verb. It is of course possible that the two verbs are unrelated, and only *syttyä* is borrowed from Iranian, but it is more probable that *syttyä* is derived from *syteä*.

Janne Saarikivi (personal communication) considers the verb *syteä* and the noun *sysi* (stem *syte-*) ‘coal’ to be of same origin. *sysi* has a convincing Uralic etymology ([SSA] s. v. *sysi*), but it remains uncertain whether the verbs *syteä* and *syttyä* have anything to do with this noun. Saarikivi also connects Komi *sot-*, Udmurt *sut̪ini* ‘to aflame’ to the Finnic verbs, considering the Permic word as a borrowing from Finnic, but it remains open whether this can be suggested by actual linguistic evidence. The Permic words cannot be direct borrowings from Iranian, as Permic *-t* cannot reflect earlier affricate **č* (in Finnic **č > t* is a regular development), and it would be very difficult to derive the Permic word from Iranian **suč*. Joki [1973: 67] notes that the Komi word has been connected with the Iranian word by R. R. Stackelberg as early as in 1893, but Joki rejects the explanation because of the problem with the affricate.

Etymology: convincing (from Iranian **suč-*)

3.2.26. *Taivas* ‘sky, heaven’ (cognates in all Finnic languages)

← PI(I) **daywa-* > Av *daēvō* ‘demon; god’, OI *devaḥ* ‘heavenly, divine; god’ ([EWAia I: 742–3] s. v. *devá-*)

([Joki 1973: 323; Rédei 1986: 60; Koivulehto 1999a: 228, 232]; [SSA II] s. v. *taivas*)

This is a credible Indo-Iranian etymology, first suggested by Diefenbach [1851: 607]. A Baltic origin (from **deiwas* > Lith. *dievas*) has also been suggested by Thomsen [1869: 73], but the Finnic diphthong *ai* fits the Indo-Iranian form better (cf. Larsson [1984]; Koivulehto [1999b: 80]). [SSA] notes that also semantically the Indo-Iranian word is better, as the meaning ‘heavenly’ is not attested in Baltic. Nevertheless, [EES] follows the now outdated view that a Baltic origin is more likely¹³. Although the

¹³ This question has a long research history, which is referred to by Joki [1973]. Kalima [1936; 1950] has defended the Baltic origin both by assuming that the origin ‘heaven’ might have been present in Baltic earlier and by considering the origin of the Finnic variation of **ei* and **ai* diphthongs unclear, assuming that Finnish *taivas* could continue

Indo-Iranian etymology is convincing, it is difficult to date the borrowing precisely, as the word can equally well be Iranian or Proto-Indo-Iranian on phonological grounds. Schmid [1979: 268] sees the Iranian origin unlikely because of the negative semantics that are connected to the word **daywa* (> Av *daēvō*) in the Iranian languages. But these negative semantics are clearly the result of Zoroastrian religion, and there is no reason to suppose that in Proto-Iranian the word already had acquired a meaning referring to ‘demons’.

Some other terms related to mythology (such as **juma* ‘god’) were borrowed from Iranian at a stage when Finnic, Saami, Mordvin (and Mari?) were still forming a dialect continuum at the least, if not a unitary proto-language. This word might belong to the same era, but has simply been lost from the other languages.

According to Koivulehto [2003], the verb *toivoa* ‘to wish’ is borrowed from a reflex of the same Indo-Iranian root (see the *Section 3.2.30*).

Etymology: convincing

3.2.27. *Takra* ‘piece of meat (as a bait)’ (has cognates in Karelian, Ludic and Veps)

← **daHtra-*, from verb **daH-* ‘to give’ > OI *dātrá-* ‘allotted portion, share’, Av *dāθra-* ‘gift, alms’ ([EWAia I: 713–715] s. v. *DĀ*)
 ([Koivulehto 1999a: 232])

Here Koivulehto proposed a substitution **tr-* > **kr-*, as no **tr-* would have been possible in Pre-Finnic (if the word was borrowed from Proto-Iranian, then probably **θr-* → **kr-*). His explanation is satisfactory, and since there is no competing etymology for this Finnic word, the Indo-Iranian etymology can be accepted. Nevertheless, one has to note that the very limited distribution of the word raises questions of its early Indo-Iranian origin, and it would be more convincing if there were parallel cases of this substitution within Indo-Iranian loanwords. Koivulehto does present similar cases among Germanic loans (PFi **nekla* ‘needle’ ← PG **nēpla-*). Semantically the etymology is plausible.

Etymology: convincing

earlier **ei*. Koivulehto rightly stats that this view is now outdated, as Finnish **ei* can reflect earlier **ai*, but not vice versa (see now also [Kallio 2014; 2018] for detailed discussions of the development of these Finnic diphthongs).

3.2.28. *Talas* ‘shelter’ (has cognates in Estonian and Livonian); *talo* ‘house’ (derivate; has cognates in all Finnic languages) < ? PU **talas*

← PII **talHa-* > OI *tala-* ‘surface, level (Fläche, Ebene)’ ([EWAia I: 637]) ([UEW]; [SSA] s. v. *talo*; [Korenchy 1972: 74–75])

It is unclear whether the Finnic word has cognates in other branches of Uralic. It is included in the present list because Koivulehto [1999: 227] states that the word occurs only in Finnic. However, Sammallahti [1988: 550] considers Permic and Mansi words (Mansi *tul* ‘pool; shed’, Ud *tīlis* ‘hut’) as regular cognates of the Finnic words. The same comparison is found also in [UEW], although there the Mansi word is accompanied by a question mark. Recently Aikio [2015b: 56] has considered the Finnic and Permic words as regular cognates. The Finnic word has also competing Germanic and Baltic etymologies ([SSA] s. v. *talas*; [LÄGLOS III: 268–269] s. v. *talas*). **l* of the Uralic forms is atypical of Indo-Iranian loans, as they usually reflect the Indo-Iranian sound-change **l* > **r*.

The etymology of the Indo-Iranian word is uncertain according to [EWAia]. IEW [1061] assumed that the word has cognates in several Indo-European languages, such as Slavic **tblo* ‘ground’, Baltic (Lith. *pã-talas*, Latv. *patali* [Pl.] ‘bed’, Old Prussian *talus* ‘floor’) Germanic (German *Diele* ‘floorboard’) and Latin (*tellūs* ‘earth’), but [EWAia] is less certain of this connection. Derksen [2015: 465] reconstructs the Indo-European root as **t̥h₂-* connects the Baltic words **patalas* and **tiles* ‘bottom of a barge, flooring’ to the Slavic and Germanic words, but does not mention the Indo-Aryan word.

LÄGLOS notes that Koivulehto (in an unpublished handout) has considered *talas* as a borrowing from early Proto-Germanic **stāla-s* (> ON *stóll* ‘chair’), and that Hofstra [1985] supposes that the word was borrowed from Germanic (cf. **stalla-z* (> Old Norse *stallr* ‘stand; (pagan) altar; stable, manger’). [LÄGLOS] considers both etymologies as plausible, and states that the Finnic word is possibly (but not certainly) a loanword from Germanic.

However, if the set indeed includes Mansi and Permic cognates, the Indo-Iranian source would be more credible, as no Germanic loan has such a distribution within Uralic. If the word indeed is an Indo-Iranian borrowing, Finnic *-as* has to be a later suffix, as the Indo-Iranian word is a neuter (the nominative form would be **talHam* > OI *talam*) and does not manifest the ending *-as* that is found in some other loans such as *taivas* (← PII **daywas*). It is also possible that the similarity of the Uralic and the various Indo-European words is simply accidental.

Also a Baltic origin has been assumed (Proto-Baltic **talas* > Lith *pã-talas* ‘bed’) but according to [LÄGLOS] this is semantically less suitable than the Germanic and Indo-Iranian words. One has to state that semantically the Indo-Iranian etymology is not very good either.

Etymology: unconvincing (can be other Indo-European loan)

3.2.29. *Terve* ‘healthy, whole’, Est *tere* id. and regular cognates in all the other Finnic languages < PFI **terveš*

← PII (or PI) **drva-*, **drvã* > Av *druua-* ‘healthy’, OP *duruva-* ‘solid, firm’, New Persian *darōd* ‘health, bloom’, OI *dhruvã-* ‘solid, firm, fixed, secure’ ([EWAia I: 798–799])

([Setälä 1928: 300; Koivulehto 2003]; [EES] s. v. *tere*)

Koivulehto’s etymology was proposed in a presentation and its handout and has not been published as such, but is referred to by [EES], K. Häkkinen [2004] and [LÄGLOS III: 291] s. v. *terve*. [LÄGLOS] considers Koivulehto’s Indo-Iranian etymology better than the Germanic etymologies that have been suggested: Katz [1990: 14] has derived the Finnic word from PG **trewwas* (> ON *tryggr* ‘faithful’), and Hofstra [1992: 59–60], from PG **derbaz* (> ON *djarfr* ‘brave’), but neither is supported by [LÄGLOS]. In [SSA], the relationship of *terve* to *terva* ‘tar’ (originally presented by Kiparsky [1952: 94–99]) is considered the most viable option; *terva* is originally a Baltic loan from **derva* ‘tar’.

Both semantically and phonologically, the etymology suggested by Koivulehto is convincing. The vowel *e* results here from the substitution of the cluster **drv-*. The meaning ‘healthy’ seems to be attested exclusively in the Iranian side, although also the more original meaning of ‘solid, firm’ is attested in Old Persian. According to [EWAia], the adjective is derived from the root **dhar-* ‘to keep, maintain’.

Earlier Setälä [1928: 298–308] had presented another Indo-Iranian source for the word *terve*, namely Pre-II **dhermen-* (> PII **dharman-* > OI *dharman-*), but this etymology was rejected by Jacobsohn [1933: 139] already as phonologically impossible.

Also a Slavic etymology for the Finnic word has been suggested earlier (Ahlqvist [1857] derived the word from Russian *zdorovyj* ‘healthy’ < PSI **s̥dōrv̥s*), which is ultimately from the same Indo-European root as the Indo-Iranian word (the Slavic word continues PIE **h₂sudhoruo*, cf. [Derksen 2009: 478–479] s. v. **s̥dōrv̥s*). It would be very difficult

to derive the Finnic vocalism from either the Proto-Slavic or Russian word, and the Indo-Iranian etymology is clearly a better option.

Etymology: convincing

3.2.30. *Toivoa* ‘to hope, wish; to foresee’, *toivo*, *toive* ‘hope, wish’, *toivio-retki* ‘pilgrimage’, Est *tōotama* ‘to promise, to foresee’, cognates in all Finnic languages; Votic *toivoa* ‘to wish’ is probably borrowed from Ingrian [SSA] s. v. *toivoa*; [EES] s. v. *tōotama*]

← PII (or PI) **daywa-* or **dāywa-*, **dāiwyā-* > OI *devá-* ‘heavenly, divine; god’, *daíva-*, *dāivya-* ‘divine, belonging to the gods’ ([EWAia I: 742–743] s. v. *devá-*)

([Koivulehto 2003]; [EES] s. v. *tōotama*)

It is uncertain whether the word is restricted to Finnic, as Saami (N) *doaivut* (with cognates in most Saami languages) is either a cognate of the Finnic word or borrowed from it [Kuokkala 2018: 32]. In [SSA], the words are considered as cognates, [EES] mentions the possibility of Finnish loan to Saami. The relationship of the Saami and Finnic words remains unclear for the time being.

Koivulehto’s etymology for this Finnic word family is, in principle, convincing. Koivulehto never published the etymology in print, but it is referred to by [EES]. The Indo-Iranian original is the same word from which the noun *taivas* (see Section 3.2.26) has been borrowed; the semantic difference between ‘to wish’ and ‘heaven’ is rather wide, but both can be derived from the semantics of the Indo-Iranian word, as Koivulehto lists also meanings ‘divine will, faith, happiness’ among the meanings of the Indic word *dāivya-*.

The problem is that the vowel substitution is different, and it is difficult to see why PII **a* was substituted differently in the same environment in these two words. One possibility is that the words reflect two different layers of borrowing, but it is very difficult to prove this. On the other hand, Koivulehto notes that an old vrddhi formation **dāywa-* (PIE **dēywo-*) can be reconstructed for the word in question. It is possible that a short *a* is reflected in *taivas*, whereas a long *ā* is reflected in *toivo*. Phonetically, this is not compelling, and this solution would be rather speculative. Another hypothetical reason could be a difference in accentuation: in the Vedic vrddhi-forms *daívyā-* ‘divine’, Fem. *daívi-*, *dāiva-* id. (but note also *daivá-*) the accent is on the first syllable, but on the last syllable on *devá-*.

Despite the phonological problem mentioned above, the etymology can be accepted. No competing loan explanation for the Finnic word exists.

Etymology: convincing

3.2.31. *viha* ‘hate’, *vihata* ‘to hate’ (has cognates in all Finnic languages)

← PII **dwiš-* > OI *dviš-* ‘to hate’ ([EWAia: 770–71] s. v. DVEš)
 ([Parpola 1999: 201–202]; [SSA] s. v. *viha*)

According to the traditional view that is reflected by [UEW], the words *viha* ‘venom’ and *viha* ‘hate’ are the same word, which is a borrowing from Indo-Iranian **wiša-* ‘venom’. This is an established and well-known etymology, and the Finnic word has probable cognates in Permic. Parpola separates the two *viha* words and considers these as separate borrowings from two different Indo-Iranian sources. It is difficult to determine whether these are separate borrowings or not, since both Indo-Iranian origins (**wiša-* and **dwiš-*) are phonologically suitable. In Hungarian, the words for ‘poison’ and ‘hate’ (*méreg* and *mérges*) are clearly etymologically connected ([Bárczi 1941] s. v. *méreg*; [MszFE] s. v. *méreg*). Therefore, it seems plausible to suppose that the two Finnic words could reflect the same word, the original meaning of which would have been ‘venom, poison’.

Etymology: unclear

3.3. Indo-Iranian etymologies that have irregular cognates in Finnic and neighbouring branches

This section deals with Finnic words with proposed Indo-Iranian etymologies, which have irregular cognates in other (Western) Uralic branches. This irregularity indicates that these words might be also Indo-Iranian loans which are reflected solely in Finnic. The irregularity can result from parallel borrowing, undetected sound laws, or false etymologies, and each case has to be treated separately.

3.3.1. *Ahtera* ‘barren, sterile (of a cow)’ (has cognates in Votic, Estonian and Livonian); Mo E *ekšt’er*, *jekšt’er*, *jakšt’er* M *jašt’ər* < ? **äštärä* or **äkštärä*

← PII (or PI) **akšaitra* > OI *ákšetra-* ‘destitute of fields, uncultivated’
 ([Bláček 1990: 40; Aikio 2015b: 44])

This word is present in both Finnic and Mordvin, but Aikio (p. c.) indicated that the words are not regular cognates, so they could be parallel borrowings. A cluster of three consonants is also atypical for the inherited

Proto-Finnic words. Aikio [2015b] argues that the Finnic word could reflect the originally front-vocalic form **äkštärä*. It is interesting that there seem to be no other credible Indo-Iranian etymologies in Finnic, where PII or PI **a* would have been substituted by **ä*. If the Finnic and Mordvin words are indeed parallel loans, there is no reason to suppose a front-vocalic reconstruction for the Finnic word, as different substitution patterns could have been used in Pre-Finnic and Pre-Mordvin. The Mordvin word certainly reflects a front-vocalic form **äkštärä*.

This word is one of the best examples providing support for the hypothesis that Finnic could have borrowed words from an Indo-Iranian language independently, after its split off from the nearest proto-languages.

Munkácsi [1901: 238–289] had earlier considered the Uralic words as a loan from another Indo-Iranian word, namely **starī-* (> OI *starī-* ‘cow that does not give milk’, from PIE **sterih₂-* ‘sterile’, [EWAia II: 757]). This explanation looks less likely, because here we would have to assume that a prothetic vowel developed before the word-initial consonant cluster in Uralic. Although this kind of substitution would be a possible way to avoid the Anlaut cluster, there are no parallel examples in the early loanwords, where these kinds of clusters were typically simplified (cf. **sampas* ← **stambhas*). Also the substitution of **s* by **š* would be unexpected. Munkácsi also connects Hungarian *eszter* ‘infertile, barren’ to the Mordvin and Finnic words, but it is impossible to derive the Hungarian, Finnic and Mordvin words from the same Uralic pre-form. The possible Indo-Iranian origin of the Hungarian word has to be left for further study to solve.

The Indo-Iranian etymology suggested by Blážek itself is convincing in principle, but because of various vowel-reductions in this kind of trisyllabic word, it is difficult to establish the precise substitutions. Here one has to also take into account the possibility that the similarity of the Uralic and Sanskrit words might be accidental. Many words relating to agriculture have irregular cognates in Mordvin, Mari and sometimes in Saami, and these could reflect substrate borrowings from some unknown language [Aikio 2015b: 43–47]. The semantics and the irregular relationship of Finnic *ahtera* and Mordvin *ekšt'er* mean that these words could belong to this group of words as well.

Etymology: convincing

3.3.2. *Huhta*, *huuhhta* ‘burned patch in slash-and-burn agriculture’ (has cognates in Karelian, Ludic and Estonian); Mordvin E *čuvto*, M *šufta* ‘tree’ < ? West-Uralic **šukta* (Koivulehto: *čukta*)

← PI **tsuxta-*, verbal adjective from the root **tsawč-* > Av *upa-suxta* ‘burned’, root *saoč-* ‘to burn’ ([Cheung 2007] **sauč-*)
 ([Koivulehto 1999a: 225–226; 2001b: 256–257])

The etymology itself is plausible, as the Finnic and Mordvin words can be regularly derived from Iranian **tsuxta-*. Koivulehto [2001b: 257] himself notes that the relationship Fi *u*¹⁴ : Mo *u* is irregular (one would expect Mo *o*), but states that this “points to borrowing”. However, most of early borrowings display identical reflexes with those observed in the inherited Uralic words. The reason for irregularity can simply be that the word is a parallel loan in Mordvin and Finnic, or that it has penetrated from pre-Mordvin to pre-Finnic. While there is a lot of research about secondary contacts and lexical diffusion between Saami and Finnic, the possibility of post-proto-language convergence between Mordvin and Finnic has been poorly studied. Aikio [2015b: 44–46] noted that in Finnic, Mordvin and Mari (and also in Saami, yet more rarely) there are many irregular words, which could probably result from a substrate language (for example, Fi *lehmä* ‘cow’ ~ Mo E *lišme* ‘horse’ < ? **lešmä*, Fi *vehnä* ‘wheat’ ~ Mo E *viš*, Mari E *wiste* ‘spelt’ < ? **wešnä*). The latest Iranian borrowings might have been acquired at the time when these substrate words were borrowed.

Koivulehto [1991: 32] had earlier suggested a Baltic etymology for this word, but the postulated Baltic form **šukta-* is unattested. It would equally well match the Finnic and Mordvin words, which have to reflect Proto(-West-)Uralic **š* rather than **č*; according to Aikio’s [2015b: 4–5] views on Uralic sibilants, the word has to be reconstructed as **šukta*, not **čukta*, although the latter form would suit the Iranian reconstruction better. Nevertheless, the etymology is otherwise convincing, and due to the lack of the attested Baltic form, the Iranian borrowing looks more likely.

Etymology: convincing

¹⁴ The long *uu* in eastern dialects of Finnish and in Karelian is secondary, cf. [Itkonen 1987].

3.3.3. *Porsas* ‘piglet’ (has cognates in all Finnic languages); Mo E *purtsos*, M *puŗts* id.; Ud *parś*, *pariś*, Ko *porś* ‘pig’ < Pre-FI/PU **porćas* ~ **porśas* ‘pig’

← ? PII **parća-* / Pre-II **porćo* or ← PBSI ? **parśa-* < PIE **porkos*
 ([Joki 1959: 52; 1973: 303; 1988: 585]; [SSA II] s. v. *porsas*; [Koivulehto 2001b: 242])

This is an intriguing word, as it is clearly an Indo-European borrowing, but not necessarily an Indo-Iranian one. According to Kallio (ms.) the Finnic word could be a Balto-Slavic borrowing. This possibility has been hinted also by Napolskikh [2002], and already Benveniste [1949: 87] noted the difficulties of deriving the Uralic word(s) from Indo-Iranian, and supported an earlier Indo-European etymology for the word. The second syllable **o* was either not possible or at least very rare in PU, cf. [Aikio 2015b], so **as* could have been a suitable substitution of PIE **os*. Indo-Iranian origin would work too, as Uralic **o* is a possible substitution for PII **a* (cf. well-known examples like **ora* ‘awl’ ← PII **āra-* [Koivulehto 2001b: 248]). Whether **a* or **o* should be reconstructed in the first syllable of the Balto-Slavic word at this point does not matter much, as both could be substituted by Uralic/Pre-Finnic **o*. Koivulehto [1991: 24; 2001b: 242] has assumed that the Finnic word could be borrowed from North-West Indo-European, and Uralic *ć* would substitute the retained PIE **k* here (as argued already by Joki [1959: 52]), but it is impossible to prove that the word was not borrowed from a later *satem* language (such as Balto-Slavic). Koivulehto also notes that the ending *-as* is atypical for the earliest Indo-Iranian loans, but this claim is only partly correct, as it appears in a number of loans, some of which are difficult to date and are not necessarily very late. It seems correct that ending **as* is not attested in tentative PIE loans.

As said, Mordvin and Permic (Ud *parś*, Ko *porś*) forms cannot be regular cognates of the Finnic word, so they are parallel loans, probably from Indo-Iranian, as Koivulehto (2001b: 242) has noted. The problem here is that because of the palatal *ś* in Permic this borrowing, too, must be quite old, but a more detailed treatment of this issue has to be pursued elsewhere. [EES] mentions that the Mordvin words could have been borrowed from Finnic languages, but this could hardly explain the Mordvin affricates.

Hyllested [2014: 84–85] has argued that at least the forms in Mordvin and Permic are borrowed from Turkic **borsuq* ‘badger’ (> Chuvash *porbš* id.). Hyllested assumes that the Indo-European words, too, are ultimately borrowed from this Turkic word, which he considers a “Central Asiatic

culture word”. I find no reason to support Hyllested’s arguments. The consonantism of the Udmurt, Komi and Mordvin words can hardly be explained from the Turkic forms: while I admit that the Indo-Iranian origin explains the palatal sibilant of Permic only if the borrowing is very early (not from Iranian **partsa-* or **parsa-*), the Turkic *s* or *š* is not better at all, as it would probably have been substituted by **š* in Permic. And although semantically it would not be impossible to derive the ‘pig(let)’ words from ‘badger’, the idea that the central Uralic words are simply Indo-Iranian loanwords is more convincing also from this point of view.

Etymology: unclear (certainly from Indo-European, but not necessarily from PII)

3.3.4. *Hyvä* ‘good’ (has cognates in all Finnic languages), SaN *savvit* ‘to heal a wound’ (has cognates in all Saami languages except Akkala and Ter); Mordvin E *čiv*, M *čiva* ‘hospitable’ < ? **šivä* ~ **čiwä*

← PI **tsiwa-*, cf. OI *šiva-* ‘auspicious, propitious, gracious, favourable, benign, kind, benevolent, friendly, dear’; god’s name *Šiva-* < PII **čiwa-* ([EWAia II: 640])

([Koivulehto 2009: 85–87])

Koivulehto considers this West-Uralic word as a loan from Proto-Iranian, but this is not necessarily the case. First of all, this word is not even attested in Iranian. It is attested in Indo-Aryan and has an Indo-European etymology (the word is derived from PIE **kēywo-*, as Koivulehto notes), so the word must have been present in PII, but there are no traces of it in the attested Iranian languages. Of course, it is possible that the word was still present in Iranian, even though it has not been attested (it is well-known that the corpus of Old Iranian texts is much smaller than the huge amount of Old Indo-Aryan material, and this is also mentioned by Koivulehto), but there are other problems with the etymology as well.

Apart from this, the phonological relations between the Finno-Ugric words are irregular: the Saami and Finnic words point at **šiwä*¹⁵, whereas the Mordvin words cannot reflect this form. Erzya affricate *č* is often secondary and reflects regularly earlier (PU) **š*. Finnic *h*, on the other hand, cannot reflect PU **č* according to Aikio [2015a: 4–5]. Koivulehto still assumed

¹⁵ In earlier sources such as [UEW], the word has been reconstructed as **šeŋä*. Koivulehto convincingly argues that such a reconstruction is impossible because *ŋ* would have been retained in Mordvin.

that Finnic *h* can reflect either *š or *č. Furthermore, the relation E č : M č is irregular (in the case of earlier *š, the reflex š should have been retained in Moksha), and it is difficult even to reconstruct this word to Proto-Mordvin. Koivulehto assumes that the Finnic word could reflect earlier *čiwā, and the Saami word could be a loan from Finnic, but this cannot be the case since the Finnic *h* must go back to *š, not *č according to Aikio [2015].

Furthermore, the vowels are also problematic: in *ä stems, PU/PWU *i regularly develops into *e* in both Mordvin languages [Bereczki 1988: 320], so on the basis of the Mordvin forms an old *i-ä* stem cannot be reconstructed. A form *čewā could be reconstructed for Pre-Mordvin on the basis of the Moksha and Erzya forms. The Saami form could reflect either earlier **e* or **i*. According to Santeri Junttila (personal communication), the Livonian cognate point to *šiwā. Both the vocalism and the consonantism manifests serious problems and the words cannot be regular cognates.

All these things considered, the etymology is rather to be rejected. Alternatively, parallel loans with different consonant and vowel substitutions in Finnic, Saami and Mordvin could be assumed, but the absence of the word from Iranian makes this unlikely. Probably the Finnic and Saami words are cognates, but they have nothing to do with the Mordvin words.

Etymology: unconvincing

3.3.5. *Suka* ‘haircomb’ (has cognates in all Finnic languages); SaN *čohkut* ‘to comb’ (has cognates in all Saami languages except Akkala); Mo *śuva* ‘husk of grain’; Mari *šu* ‘husk of grain’; Ud *śu* ‘rye; grain’

← PII *čūka- > Av *sūkā* ‘spike, needle’, Oss *syg* ‘awn’, OI *śūkā* ‘awn, stangle ([EWAia III: 494–495]), cf. also Ved. *suci-* (< ? earlier **śuci*) ‘needle’ or ← PBSI **śuka* ‘comb’, cf. Lith. pl. *šūkos* ‘comb, woolcomb’ ([Frankel 1962–1965: 1031] s. v. *šūkos*)

([Kallio 2009: 32–33; Junttila 2012]; [SSA] s. v. *suka*; [Joki 1973: 315–316; Redei 1986: 59–60])

The Finnic word has been cautiously connected to the Mordvin and Permic words in earlier research, but Kallio has convincingly shown that the Finnic word and its Saami cognate represent separate loans from Balto-Slavic. It indeed seems to be the case that the Finnic and Saami words should be separated from the Mordvin, Mari and Permic words for semantic reasons. Kallio’s Balto-Slavic etymology for the Finnic word is more plausible semantically. Fraenkel ([1962–1965] s. v. *šūko*) notes that the

background of the Baltic word is unclear, but the Lithuanian word could regularly reflect Balto-Slavic **šukā*.

The words in Mordvin, Mari and Permic might be parallel loans from Indo-Iranian, as the relationship between them is not entirely regular. In Mordvin, earlier **u–a* stems should develop *o* in the initial syllable, compare PU **muna* ‘egg’ > Mordvin *mona*, PU **kuma-* ‘face down’ > Mordvin *koma-* [Sammallahti 1988: 537–538]. However, the borrowing has to be early in all the languages because Permic and Mordvin clearly show reflexes of PU palatal sibilant, which could not result from later Iranian forms.

Etymology: unconvincing (the Finnic word is not borrowed from Indo-Iranian)

3.3.5. *Syntyä* ‘to be born’ (has cognates in all Finnic languages); Ko *sod-*, *sud-* ‘to increase’ < ? **sentä-*

← “Pre-Iranian” **dzenH-* ([Cheung 2007] **zanH*) < PIE **ǵenh₁-* ‘to be born’ ([LIV: 163])

([Koivulehto 1999a: 222–223; 2001b: 254–255])

For this etymology, Koivulehto had to postulate an irregular change **e* > **ü* (= Fi *y*) in Finnic. There are examples of PU/Pre-FI **e* being reflected as Finnic **ü* (such as **jewä* > **jüwä* ‘grain’, also an Indo-Iranian loanword). However, this change is usually caused by phonological factors which are missing from this word. Pystynen [2015] dealt with some of these cases and concluded that **e* does not usually labialize even in front of **w*. Therefore, labialization in this context would be even more unlikely.

The Komi cognate supposed by Koivulehto cannot be a regular cognate of the Finnic word. One possibility to explain the irregular relationship would be to consider the Komi word a loan from Finnic, but this is improbable because the borrowing would have to be extremely old, from the time before the Proto-Permic denasalization (Niklas Metsäranta: personal communication). Thus, for the time being, the etymology of the Komi word remains unclear. The Saami word *šaddat* ‘to grow, to be born’ is a well-known loan from Finnic [Sammallahti 1998: 264].

Therefore, this etymology is most probably wrong. It might be possible to derive the Finnic word from a reflex of the PIE root **ǵenh₁-* in some branch of Indo-European, but this requires further study. Koivulehto’s Pre-Iranian source is obviously wrong, so this cannot be used as an evidence for a particular substitution pattern of Proto-Iranian affricates.

Etymology: unconvincing

3.3.6. *vasara* ‘hammer’; SaN *veahcir* (< PSa **veac̣ērē*; cognates in all Saami languages; cf. [Lehtiranta 2001, no. 1367]) id.; Mo E *užer*, *vižir*; M *užar* ‘axe’ < ? **wačara*

← PII **wajra-* > Av *vazra-* ‘club’, OI *vajra-* ‘thunderbolt, Indra’s weapon’ ([EWAia II: 492] s. v. *vájra-*)

([Joki 1973: 339; SSA III: 395])

This is an established etymology. According to Häkkinen [2009: 23–24], the vowel relations between Finnic, Saami and Mordvin are regular. However, this is not exactly the case: *vaski* < **wäškä* is irregular, and so it is impossible to reconstruct a unitary form to Proto-Uralic [Aikio 2015]. Also, *marras* is not a cognate of Mordvin *mir’d’e* (which reflects earlier **mertä* and is a cognate of the Komi *mort* and Udmurt *murt*), this has to be a separate loan from the same source as Finnic *marras* (see also *Section 3.2.12*). Therefore, there is no explanation for this irregularity other than assuming that the words were acquired separately to Pre-Finnic, Pre-Saami and Pre-Mordvin.

The Indo-Iranian etymology of these words is, therefore, clearly plausible, but it is impossible to reconstruct them into a unitary proto-form. Maybe this word, as a cultural term, has been a *Wanderwort* that was borrowed into one of the West-Uralic dialects after the split-up of the common proto-language of Finnic, Saami and Mordvin, and diffused between dialects. It can also simply be a parallel borrowing from Indo-Iranian in all these languages (however, the archaic, Proto-Indo-Iranian phonological shape of the word seems to contradict the idea of a late separate borrowing).

Etymology: convincing (the Finnic word is certainly an Indo-Iranian loan)

4. Conclusions

The Indo-Iranian loan etymology was rejected for the following words:

herätä, jäädä, niska, oide, sarajas, syntyä, talas

The following words are probably loans but rather from other Indo-European languages than Indo-Iranian:

aisa, talas, porsas, oja(s), ola, suka, ? tiine

The following words have a credible Indo-Iranian etymology but their distribution is not restricted to Finnic, as they have cognates in other branches of the Uralic language family:

tiine (can also be from Baltic), *piimä*

The following cases remained uncertain:

isäntä (probably a derivation from *isä* ‘father’, but the Indo-Iranian etymology cannot be ruled out), *sammua* (both Germanic and Indo-Iranian etymologies are plausible), *perna* (a promising etymology, but includes phonological problems with vowel developments), *suoda* (the vowel reconstruction is complicated which makes it hard to either accept or reject the etymology), *terni* (phonological and semantic problems), *viha* (certainly an Indo-Iranian borrowing, but it is difficult to determine whether it is the same word as *viha* ‘venom’), *verso* (similar problems as with *perna*)

The following etymologies indeed seem to be Indo-Iranian loans which are found only in Finnic:

ahnas, *aivan*, *apu*, *hadas*, *iha*¹⁶, *ihta*, *iso*, *marras*, *ohra*, *paksu*, *peijaiset*, *taivas*, *takra*, *toivoa*, *sammus*, *sytyä*, *terve*, *toivoa*

Out of the Finnic etymologies with irregular cognates elsewhere in the Uralic family, the following ones are probably of non-Indo-Iranian origin:

hyvä (not an IE loan), *suka* (probably from Balto-Slavic), *syntyä* (not an IE loan)

The word *porsas* can be from either Indo-Iranian or Balto-Slavic.

The rest (*ahtera*, *huhta*, *vasara*) have a credible Indo-Iranian etymology.

Therefore, it seems that the number of Indo-Iranian borrowings restricted to Finnic is in fact very low. In almost half of the cases evaluated here, the words are either of non-Indo-Iranian origin or have cognates in other Uralic languages. If the unclear cases are counted, the number is even greater.

As was mentioned above, distribution is not always a valid criterion in the stratigraphy of Indo-European borrowings in Uralic. Finnic words with a plausible Indo-Iranian etymology clearly reflect several diachronic layers, all of which are shared by some other Uralic branches. This means

¹⁶ But note that here it has been argued that there is no reason to suppose two homonymous *iha* words, both of which would have been borrowed from Indo-Iranian

that Finnic could not have acquired these words as a separate language. Some clearly late Iranian loans such as *varsa* and *vasa* have regular cognates in Mordvin [Koivulehto 1999a: 218–219], whereas some more archaic words are confined to Finnic. It is, however, interesting to note that many of the loanwords confined to Finnic manifest clearly Iranian features, and among those that are not demonstrably Iranian, there are no features that force us to consider these borrowings earlier Proto-Indo-Iranian loans; some of the more archaic loans are either problematic (such as *verso*) or should be rejected (such as *herätä*).

There are few irregular cases (**wačara*, **akštara*, **šukta*) which cannot be explained as wrong etymologies or results of undetected sound laws, though. They could either be parallel Indo-Iranian loans or indicate that the respective Indo-Iranian words spread through a dialect continuum which consisted of predecessors of Finnic, Saami and Mordvin, at the least. However, at least **wačara* and **šukta* clearly reflect different layers of Indo-Iranian borrowings (**wačara* with **č* from PII **j* and **šukta* with **š* from PI **c*). It is therefore unlikely that they were simultaneously diffused through the already differentiated West-Uralic dialects. Further development of historical phonological studies can reveal hitherto unexpected conditioned developments in the history of Finnic and its neighboring branches, which might help us to explain some of these cases.

Abbreviations

Av — Avestan; Est — Estonian; Ko — Komi; Lv — Livonian; Mo — Mordvin; Mo E — Erzya Mordvin; Mo M — Moksha Mordvin; OI — Old-Indo-Aryan (Sanskrit); PBsl — Proto-Balto-Slavic; PFi — Proto-Finnic; PG — Proto-Germanic; PI — Proto-Iranian; PIE — Proto-Indo-European; PII — Proto-Indo-Iranian; Pre-Fi — Pre-Finnic; Pre-II — Pre-Indo-Iranian; PSa — Proto-Saami; SaN — North Saami; SEst — South Estonian (Võro-Seto); Ud — Udmurt.

References

- Ahlqvist 1857 — A. Ahlqvist. Venäläisiä sanoja suomen kielessä. *Suomi. Tidskrift i fosterländska ämnen*. 1857. P. 89–99.
- Aikio 2012a — A. Aikio. On Finnic long vowels, Samoyed vowel sequences, and Proto-Uralic **x*. T. Hyytiäinen, L. Jalava, J. Saarikivi, E. Sandman (eds.). *Per Urales ad Orientem. Iter polyphonicum multilingue. Festskrift tillägnad Juha Janhunen på hans sextioårsdag den 12 februari 2012* (Suomalais-Ugrilaisen Seuran Toimituksia. Vol. 264). Helsinki: Suomalais-Ugrilainen Seura, 2012. P. 227–250.

- Aikio 2012b — A. Aikio. An essay on Saami linguistic prehistory. R. Grünthal, P. Kallio (eds.). *A Linguistic map of Prehistoric Northern Europe* (Suomalais-Ugrilaisen Seuran Toimituksia. Vol. 266). Helsinki: Suomalais-Ugrilainen Seura, 2012. P. 63–117.
- Aikio 2014 — A. Aikio. Studies in Uralic etymology III: Mari etymologies. *Linguistica Uralica*. 2014. Vol. L. No. 2. P. 81–93.
- Aikio 2015a — A. Aikio. Studies in Uralic Etymology IV: Ob-Ugric etymologies. *Linguistica Uralica*. 2015. Vol. LI. No. 1. P. 1–20.
- Aikio 2015b — A. Aikio. The Finnic ‘secondary e-stems’ and Proto-Uralic vocalism. *Suomalais-Ugrilaisen Seuran Aikakauskirja. Journal de la Société Finno-Ougrienne*. 2015. No. 95. P. 25–66.
- Aikio, Kallio 2005 — A. Aikio, P. Kallio. Zu Hartmut Katz: *Studien zu den älteren indoiranischen Lehnwörtern in den uralischen Sprachen. Aus dem Nachlass herausgegeben von Paul Widmer, Anna Widmer und Gerson Klumpp. Die Sprache: Zeitschrift für Sprachwissenschaft*. 2005. Bd. 45. S. 212–222.
- Bárczi 1941 — G. Bárczi. *Magyar szófejtő szótár*. Budapest: Királyi Magyar Egyetemi Nyomda, 1941.
- Beekes 2010 — R. Beekes. *Etymological dictionary of Greek* (Leiden Etymological Dictionary Series. Vol. 10). Leiden; Boston: Brill, 2010.
- Benveniste 1949 — E. Benveniste. Noms d’animaux en indo-européen. *Bulletin de la Société de linguistique de Paris*. 1949. No. 45. P. 74–103.
- Bereczki 1988 — G. Bereczki. Geschichte der wolgafinnischen Sprachen. D. Sinor (ed.). *The Uralic languages. Description, History and Foreign Influences*. Leiden; New York; København; Köln: Brill, 1988. P. 314–350.
- Bláček 1990 — V. Bláček. New Fenno-Ugric-Indo-Iranian lexical parallels. Вяч. Вс. Иванов, Т. М. Судник, Е. А. Хелимский (ред.). *Uralo-Indogermanica II. Балто-славянские языки и проблема урало-индоевропейских связей*. Материалы 3-й балто-славянской конференции, 18–22 июня 1990 г. М.: Институт славяноведения и балканистики АН СССР, 1990. С. 40–45 (V. Bláček. New Fenno-Ugric-Indo-Iranian lexical parallels. Vyach. Vs. Ivanov, T. M. Sudnik, E. A. Khelimskiy (eds.). *Uralo-Indogermanica II. Balto-slavyanskiye yazyki i problema uralo-indo-evropeyskikh svyazey* [Balto-Slavic languages and the problem of Ural-Indo-European relations]. Proceedings of the 3rd Balto-Slavic conference, June 18–22, 1990. Moscow: Institute of Slavic and Balkan Studies of the USSR Academy of Sciences, 1990. P. 40–45).
- Cheung 2007 — J. Cheung. *Etymological dictionary of the Iranian verb* (Leiden Etymological Dictionary Series. Vol. 2). Leiden: Brill, 2009.
- de Vaan 2000 — M. de Vaan. The Indo-Iranian animal suffix *ācá-. *Indo-Iranian Journal*. 2000. Vol. 43. P. 279–293.
- Derksen 2009 — R. Derksen. *Etymological dictionary of the Slavic inherited lexicon* (Leiden Etymological Dictionary Series. Vol. 4). Leiden; Boston: Brill, 2009.
- Derksen 2015 — Rick Derksen. *Etymological dictionary of the Baltic inherited lexicon*. Leiden Etymological Dictionary Series. Vol. 13. Leiden/Boston: Brill, 2015.
- Diefenbach 1851 — L. Diefenbach. *Vergleichendes Wörterbuch der Gothischen Sprache*. Bd. II. Frankfurt am Main: Verlag von Joseph Baer, 1851.

- EWAia — M. Mayrhofer. *Etymologisches Wörterbuch des Altindoarischen*. Heidelberg: Winter, 1986–2001.
- Fraenkel 1962–1965 — E. Fraenkel. *Litauisches etymologisches Wörterbuch*. Heidelberg: Winter, 1962–1965.
- Garnier et al. 2017 — R. Garnier, L. Sagart, B. Sagot. Milk and the Indo-Europeans. M. Robbeets, A. Saveljev (eds.). *Language Dispersal Beyond Farming*. Amsterdam: Benjamins, 2017. P. 291–311.
- Grünthal 2012 — R. Grünthal. Baltic loanwords in Mordvin. R. Grünthal, P. Kallio (eds.). *A Linguistic map of Prehistoric Northern Europe* (Suomalais-Ugrilaisen Seuran Toimituksia. Vol. 266). Helsinki: Suomalais-Ugrilainen Seura, 2012. P. 297–343.
- Hahmo 1988 — S.-L. Hahmo. *Omaa vai lainattua: itämerensuomen germaanisiin lainasanoihin liittyviä kirjoitelmia*. Helsinki: Suomalaisen Kirjallisuuden Seura, 1988.
- Häkkinen 1984 — K. Häkkinen. Wäre es schon an der Zeit, den Stammbaum zu fallen? *Ural-Altäische Jahrbücher, Neue Folge*. 1984. Bd. 4. S. 1–24.
- Häkkinen 2004 — K. Häkkinen. *Nyky-suomen etymologinen sanakirja*. Juva: WSOY, 2004.
- Häkkinen 2009 — J. Häkkinen. Kantaauralin ajoitus ja paikannus: perustelut puntarissa. *Journal de la Société Finno-Ougrienne*. 2009. No. 92. S. 9–56.
- Helimski 1997 — Eugene Helimski. The southern neighbours of Finno-Ugrians: Iranians or an extinct branch of Aryans (“Andronovo Aryans”)? S.-L. Hahmo, T. Hofstra, L. Honti, P. van Linde, O. Nikkilä (hrsg.). *Finnisch-ugrische Sprachen in Kontakt. Vorträge des Symposiums aus Anlaß des 30-jährigen Bestehens der Finnougristik an der Rijksuniversiteit Groningen 21.-23. November 1996*. Maastrich: Shaker, 1997. P. 117–125.
- Höfler 2017 — S. Höfler. Hittite *hišša-* c. ‘thill, shaft (of a cart)’ and the feminine gender in Proto-Indo-European. Conference Handout: The Split – Reconstructing Early Indo-European Language and Culture. University of Copenhagen, September 13–15, 2017. Available at: https://www.academia.edu/34569864/Hittite_hišša-_c._thill_shaft_of_a_cart_and_the_feminine_gender_in_Prot Indo-European (accessed in July 2018).
- Hofstra 1985 — T. Hofstra. *Ostseefinnisch und Germanisch. Frühe Lehnbeziehungen im nördlichen Ostseeraum im Lichte der Forschung seit 1961*. Doctoral thesis. Groningen: Rijksuniversiteit te Groningen, 1985.
- Holopainen et al. 2017 — S. Holopainen, S. Junttila, J. Kuokkala. Indoeurópai jövevényzavak és a második szótagi labiális magánhangzók fejlődése az uráli nyelvekben. T. Forgács, M. Németh, B. Sinkovics (szerk.). *A nyelv történeti kutatások újabb eredményei IX*. Szeged: Szegedi Tudományegyetem, 2017. 109–136. o.
- Holopainen 2018 — S. Holopainen. Indo-Iranian loans in Saami. S. Holopainen, J. Saarikivi (toim.). *Peri orthótētos etýmōn. Uusiutuva uralilainen etymologia* (Uralica Helsingiensia. Vol. 11). Helsinki: Suomalais-Ugrilainen Seura, 2018. P. 135–179.
- Honti 2017 — L. Honti. *A magyar és a nyugati ótörök szókészleti kapcsolatairól*. Budapest: Tinta Könyvkiadó, 2017.
- Hyllested 2014 — A. Hyllested. Word Exchange at the Gates of Europe: Five Millennia of Language Contact. PhD dissertation. Copenhagen: Det Humanistiske Fakultet, Københavns Universitet, 2014.
- IEW — J. Pokorny *Indogermanisches Etymologisches Wörterbuch*. Bern: Francke, 1959–1969.

- Itkonen 1987 — T. Itkonen. Erään vokaalivyöhyden selvittelyä. *Virittäjä*. 1987. Vol. 91. No. 2. S. 164–208.
- Itkonen 1997 — T. Itkonen. Reflections on pre-Uralic and the “Saami-Finnic protolanguage”. *Finnisch-Ugrische Forschungen*. 1997. Bd. 54. P. 229–266.
- Jacobsohn 1922 — H. Jacobsohn. *Arier und Ugrofinnen*. Göttingen: Vandenhoeck and Ruprecht, 1922.
- Jacobsohn 1933 — H. Jacobsohn. *Zu den ältesten arischen Lehnwörtern in den finnisch-ugrischen Sprachen. Liber semisaecularis Societatis Fenno-Ugricae*. (Suomalais-Ugrilaisen Seuran Toimituksia. Vol. 67). Helsinki: Suomalais-Ugrilainen Seura, 1933.
- Joki 1973 — A. J. Joki. *Uralier und Indogermaner* (Suomalais-Ugrilaisen Seuran Toimituksia. Vol. 151). Helsinki: Suomalais-Ugrilainen Seura, 1973.
- Joki 1959 — A. J. Joki. Paleolingvistiikkamme ongelmia. P. Virtaranta, T. Itkonen, P. Pulkkinen (toim.). *Verba docent. Juhlakirja Lauri Hakulisen 60-vuotispäiväksi*. Helsinki: Suomalaisen Kirjallisuuden Seura, 1959. S. 48–67
- Junttila (ms.) — S. Junttila. Huomioita itämerensuomen *herV*-sanoista. Unpublished manuscript.
- Junttila 2012 — S. Junttila. The prehistoric context of the oldest contacts between Baltic and Finnic languages. R. Grünthal, P. Kallio (eds.). *A Linguistic map of Prehistoric Northern Europe* (Suomalais-Ugrilaisen Seuran Toimituksia. Vol. 266). Helsinki: Suomalais-Ugrilainen Seura, 2012.
- Junttila 2015 — S. Junttila. *Tiedon kumuloituminen ja trendit lainasanatutkimuksessa. Kantasuomen balttilaislainojen tutkimushistoria*. Doctoral dissertation. Helsinki: Helsingin yliopisto, 2015. P. 261–296.
- Junttila 2016 — S. Junttila. Die baltisch-slawische Frage im Lichte der alten baltischen Lehnwörter des ostseefinnischen. *Baltistica*. 2016. Vol. LI. No. 2. S. 217–238.
- Kalima 1933 — J. Kalima. Fi. *sammas* ‘grenzstein’. *Finnisch-Ugrische Forschungen*. 1933. Bd. 21. S. 128–137.
- Kalima 1936 — Jalo Kalima. *Itämerensuomalaisten kielten balttilaiset lainasanat*. Helsinki: Suomalaisen Kirjallisuuden Seura, 1936.
- Kallio (ms.) — The Proto-Balto-Slavic loanword stratum in the Uralic languages. Unpublished manuscript.
- Kallio 2009 — P. Kallio. Stratigraphy of Indo-European loanwords in Saami. T. Äikäs (ed.). *Mattut — maddagat: The Roots of Saami Ethnicities, Societies and Spaces / Places*. Oulu: Giellagas Institute at the University of Oulu, 2009. P. 30–45.
- Kallio 2006 — P. Kallio. Suomen kantakielten absoluuttista kronologiaa. *Virittäjä*. 2006. Vol. 110. No. 1. S. 2–25.
- Kallio 2014 — P. Kallio. Diversification of Proto-Finnic. J. Ahola, Frog, C. Tolley (eds.). *Fibula, Fabula, Fact. The Viking age in Finland* (Studia Fennica Historica. Vol. 18). Helsinki: Suomalaisen Kirjallisuuden Seura, 2014. P. 155–168.
- Kallio 2018 — Ensivavun diftongit kantasuomessa. S. Holopainen, J. Saarikivi (toim.). *Peri orthótētos etýmōn. Uusiutuva uralilainen etymologia* (Uralica Helsingiensia. Vol. 11). Helsinki: Suomalais-Ugrilainen Seura, 2018. S. 251–268.
- Katz 1983b — H. Katz. Zu idg. *mṛtō-. *Die Sprache*. 1983. Bd. 29. S. 174–177.

- Katz 2003 — H. Katz. *Studien zu den älteren indoiranischen Lehnwörtern in den uralischen Sprachen*. Aus dem Nachlas herausgegeben von P. Widmer, A. Widmer und G. Klumpp. Heidelberg: C. Winter, 2003.
- Katz 1983a — H. Katz. Hehtitisch *hišša* — und zubehör. G. Frantz-Szabo (hrsg.). *Festschrift Annelies Kammenhuber* (Orientalia. Vol. 52. No. 1). Rome: Pontificium Institutum Biblicum, 1983. S. 116–122.
- KEWA — M. Mayrhofer. *Kurzgefaßtes etymologisches Wörterbuch des Altindischen*. Bd. I–IV. Heidelberg: C. Winter, 1956–1980.
- Kloekhorst 2008 — A. Kloekhorst. *Etymological Dictionary of the Hittite Inherited Lexicon* (Leiden Etymological Dictionary Series. Vol. 5). Leiden; Boston: Brill, 2008.
- Kluge 2012 — F. Kluge. *Etymologisches Wörterbuch der deutschen Sprache*. 25. erweiterte Auflage. Bearbeitet von E. Seebold. Berlin; New York: de Gruyter, 2012.
- Kobayashi 2004 — M. Kobayashi. *Historical phonology of Old Indo-Aryan consonants* (Study of Languages and Cultures of Asia and Africa Monograph Series. Vol. 42). Tokyo: Research Institute for Languages and Cultures of Asia and Africa, Tokyo University of Foreign Studies, 2004.
- Koivulehto 1991 — J. Koivulehto. *Uralische Evidenz für die Laryngaltheorie* (Veröffentlichungen der Kommission für Linguistik und Kommunikationsforschung, Heft 24). Wien: Verlag der Österreichischen Akademie der Wissenschaften, 1991.
- Koivulehto 1999a — J. Koivulehto. Varhaiset indoeurooppalaisyhteistyöt: aika ja paikka lainasanojen valossa. P. Fogelberg (toim.). *Pohjan poluilla. Suomalaisen juuret nykytutkimuksen mukaan* (Bidrag till kannedom Av Finlands natur och folk. Vol. 153). Helsinki: Suomen Tiedeseura, 1999. S. 207–236.
- Koivulehto 1999b — J. Koivulehto. *Verba mutuata. Quae vestigia antiquissimi cum Germanis aliisque Indo-Europaeis contactus in linguis Fennicis reliquerint* (Suomalais-Ugrilaisen Seuran Toimituksia. Vol. 237). Helsinki: Suomalais-Ugrilainen Seura, 1999.
- Koivulehto 2001a — J. Koivulehto. Zum frühen iranischen und indoiranischen lexikalischen Einfluss auf das Finnisch-Ugrische. K. Karttunen, P. Koskikallio (eds.). *Vidyārnava-vandanam: essays in honour of Asko Parpola* (Studia Orientalia. Vol. 94). Helsinki: Suomen Itämainen Seura, 2001. S. 359–378.
- Koivulehto 2001b — J. Koivulehto. The earliest contacts between Indo-European and Uralic speakers in the light of lexical loans. Ch. Carpelan, A. Parpola, P. Koskikallio (eds.). *Early Contacts between Uralic and Indo-European: linguistic and archaeological considerations* (Suomalais-Ugrilaisen Seuran Toimituksia. Vol. 242). Helsinki: Suomalais-Ugrilainen Seura, 2001. P. 235–264.
- Koivulehto 2003 — J. Koivulehto. Arjalaisia lainoja. Handout of a presentation held at the meeting of the Finno-Ugrian Society 21.3.2003.
- Koivulehto 2005 — J. Koivulehto. Noin jalot vietettiin hevonsuistajan Hektorin peijaa: *peijaiset- ja peikko-* sanojen alkuperästä. *Virtittäjä*. 2005. Vol. 109. No. 3. S. 322–333.
- Koivulehto 2007 — J. Koivulehto. Saamen ja suomen ‘poro’. J. Ylikoski, A. Aikio (doaim.). *Sámit, sánit, sátnehámit. Riepmočála Pekka Sammallahtii miessemánu 21. beaivve 2007* (Suomalais-Ugrilaisen Seuran Toimituksia. Vol. 253). Helsinki: Suomalais-Ugrilainen Seura, 2007. S. 251–258.
- Koivulehto 2009 — J. Koivulehto. Etymologisesti hámäriä *-(is)ta-*johdosverbejä, lainoja ja omapohjaisia. *Journal de la Société Finno-Ougrienne*. 2009. No. 92. S. 79–102.

- Koivulehto, Kallio 2016 — J. Koivulehto. *Lainatymologioita neljältä vuosikymmeneltä* (kirjoittanut P. Kallio). S. Holopainen, P. Kallio, J. Saarikivi (eds.). *Verba Vagantur: Jorma Koivulehto in memoriam* (Suomalais-Ugrilaisen Seuran Toimituksia. Vol. 272). Helsinki: Suomalais-Ugrilainen Seura, 2016. S. 456–463.
- Korenchy 1972 — É. Korenchy. *Iranische Lehnwörter in den obugrischen Sprachen*. Budapest: Akadémiai Kiadó, 1972.
- Lang 2015 — V. Lang. Formation of Proto-Finnic — an archaeological scenario from the Bronze Age/Early Iron Age. H. Mantila, K. Leinonen, S. Brunni, S. Palviainen, J. Sivonen (eds.). *Congressus Duodecimus Internationalis Fenno-Ugristarum, Oulu 2015, Plenary papers*. Oulu: University of Oulu, 2015. P. 63–84.
- Lang 2016 — V. Lang. Early Baltic-Finnic contacts as evidenced by archaeological and linguistic data. *ESUKA — JEFUL*. 2016. Vol. 7. No. 1. P. 11–38.
- Larsson 1984 — L.-G. Larsson. Estnisch *piim* und finnisch *piimä* — ein baltisches Lehnwort? *Fenno-Ugrica Suecana*. 1984. No. 7. P. 129–140.
- Lehtiranta 2001 — J. Lehtiranta. *Yhteissaamelainen sanasto*. Second edition. (Suomalais-Ugrilaisen Seuran Toimituksia. Vol. 200). Helsinki: Suomalais-Ugrilainen Seura, 2001.
- Lidén 1897 — E. Lidén. *Studien zur altindischen und vergleichenden Sprachgeschichte*. Uppsala: Almqvist and Wiksells, 1897.
- Liukkonen 1999 — K. Liukkonen. *Baltisches in finnischen*. (Suomalais-Ugrilaisen Seuran Toimituksia. Vol. 235). Helsinki: Suomalais-Ugrilainen Seura, 1999.
- LIV — H. Rix. *Lexikon der indogermanischen Verben. Die Wurzeln und ihre Primärstambildungen*. Bearbeitet von M. Kümmel, T. Zehnder, R. Lipp und B. Schirmer. Zweite, erweiterte und verbesserte Auflage, bearbeitet von M. Kümmel und H. Rix. Wiesbaden: Dr. Ludvig Reichelt Verlag, 2001.
- Lõo 1911 — J. Lõo. Meie koduloomade nimetused. *Eesti Kirjandus*. 1911. Vol. VI. Ihk. 49–61. P. 81–89.
- Lubotsky 2001 — A. Lubotsky. The Indo-Iranian substratum. Ch. Carpelan, A. Parpola, P. Koskikallio (eds.). *Early Contacts between Uralic and Indo-European: linguistic and archaeological considerations* (Suomalais-Ugrilaisen Seuran Toimituksia. Vol. 242). Helsinki: Suomalais-Ugrilainen Seura, 2001. P. 301–317.
- Mallory 1991 — J. Mallory. *In search of the Indo-Europeans. Language, Archaeology and Myth*. London: Thames and Hudson, 1991.
- Martirosyan 2013 — H. Martirosyan. The place of Armenian in the Indo-European language family: the relationship with Greek and Indo-Iranian. *Voprosy yazykovogo rodstva. Journal of Language Relationship*. 2013. No. 10. P. 85–137.
- Mayrhofer 1964 — M. Mayrhofer. “Hethitisch und Indogermanisch”. Gedanken zu einem neuen Buche. *Die Sprache*. 1964. Bd. 10. 174–197.
- Mayrhofer 1989 — M. Mayrhofer. Vorgeschichte der iranischen Sprachen; Uriranisch. R. Schmitt (hrsg.). *Compendium linguarum iranicarum*. Wiesbaden: Dr. Ludwig Reichert Verlag, 1989. S. 4–24.
- Mayrhofer 2002 — M. Mayrhofer. Zur Vertretung der indogermanischen Liquiden in den indoiranischen Sprachen. *Indologica Taurinensia*. 2002. No. 28. S. 149–161. (Published in 2004.)

- Melchert 2000 — C. Melchert. Critical response to the last four papers. R. Drews (ed.). *Greater Anatolia and the Indo-Hittite language family. Papers presented at a colloquium hosted by the University of Richmond, March 18–19, 2000* (Journal of Indo-European Studies Monograph Series. Vol. 38). Washington: Institute for the Study of Man, 2000. P. 229–235.
- Mikkola 1902 — J. J. Mikkola. Sananselyksiä. 1. Lohikäärme. 2. Marras. *Virittäjä*. 1902. Vol. 6. S. 70–72.
- MSzFE — L. György (fősz.). *A magyar szókészlet finnugor elemei*. K. I–IV. Budapest: Akadémiai Kiadó, 1967–1981.
- Munkácsi 1901 — Bernát Munkácsi. *Árja és kaukázusi elemek a finn-magyar nyelvekben*. Budapest: Magyar Tudományos Akadémia, 1901.
- Napolskich 2002 — W. Napolskich. Beziehungen zwischen Finno-Ugriern und zentraleuropäischen Indogermanen. R. Bloklund, C. Hasselblatt (eds.). *Finno-Ugrians and Indo-Europeans: linguistic and literary contacts. Proceedings of the Symposium at the University of Groningen, November 22–24, 2001* (Studia Fenno-Ugrica Groningana. Vol. 2). Maastricht: Shaker, 2002. P. 265–271.
- Napolskikh 2014 — В. В. Напольских. Проблема начала финно-угорско-иранских контактов. С. В. Кузьминых, А. А. Чижевский (ред.). *Ананьинский мир: истоки, развитие, связи, исторические судьбы* (Археология евразийских степей. Вып. 20). Казань: Институт археологии РАН, 2014. С. 76–89 (V. V. Napolskikh. Problema nachala finno-ugorsko-iranskikh kontaktov [To the problem of the beginning of Finno-Ugric-Iranian contacts]. S. V. Kuzminykh, A. A. Chizhevskiy (eds.). *Ananinskiy mir: istoki, razvitiye, svyazi, istoricheskiye sudby* [The Ananino World: origins, development, connections, historical destinies] (*Arkheologiya yevraziyskikh stepey* [Archeology of the Eurasian steppes]. Iss. 20). Kazan: Institute of archeology RAS Press, 2014. P. 76–89).
- Nuutinen 1987 — O. Nuutinen. Balttilaisten lainojen substituutiotapauksia. *Virittäjä*. 1984. Vol. 91. P. 52–70.
- Parpola 1999 — A. Parpola. Varhaisten indoeurooppalaishkontaktien ajoitus ja paikannus kielellisen ja arkeologisen aineiston perusteella. P. Fogelberg (toim.). *Pohjan poluilla. Suomalaisten juuret nykytutkimuksen mukaan* (Bidrag till kannedom Av Finlands natur och folk. Vol. 153). Helsinki: Suomen Tiedeseura, 1999. S. 179–206.
- Parpola 2005 — A. Parpola. The Nāsatyas, the Chariot and Proto-Aryan Religion. *Journal of Indological Studies*. 2005. Nos. 16; 17. P. 1–63.
- Parpola 2010 — A. Parpola. New etymologies for some Finnish words. K. Karttunen (ed.). *Anantam Śāstram. Indological and linguistic studies in honour of Bertil Tikkänen* (Studia Orientalia. Vol. 108). Helsinki: Suomen Itämainen Seura, 2010. S. 305–318.
- Parpola 2015 — A. Parpola. *Roots of Hinduism*. Oxford: Oxford University Press, 2015.
- Peters 1980 — M. Peters. *Untersuchungen zur Vertetung der indogermanischen Laryngale im Griechischen* (Veröffentlichungen der Kommission für Linguistik und Kommunikationsforschung. Heft 8). Wien: Verlag der Österreichischen Akademie der Wissenschaften, 1980.
- Pystynen 2015 — J. Pystynen. Semivowel losses and assimilations. Presentation in CIFU XII, August 19 2016. Oulu. Available at: https://www.academia.edu/15172786/Semivowel_losses_and_assimilations_in_Finnic_and_beyond (accessed in September 2016).

- Rédei 1986 — K. Rédei. *Zu den indogermanisch-uralischen Sprachkontakten* (Veröffentlichungen der Kommission für Linguistik und Kommunikationsforschung, Heft 16). Wien: Verlag der Österreichischen Akademie der Wissenschaften, 1986.
- Rintala 2003 — P. Rintala. *Iha köyhän laihakkin. Tutkimus itämerensuomen iha-ikantaisista sanoista*. Helsinki: Suomalaisen Kirjallisuuden Seura, 2003.
- RIVELEX — T. Krisch et al. *RIVELEX. Rigveda Lexikon*. Vols. 1–2. Graz: Leykam, 2006–2012.
- Róna-Tas 2017 — A. Róna-Tas. Vítás magyar etimológiák. Válasz Honti Lászlónak. *Nyelvtudományi közlemények*. 2017. K. 113. 37–84. o.
- Róna-Tas, Berta 2011 — A. Róna-Tas, Á. Berta (with the assistance of L. Károly). *West Old Turkic. Turkic loanwords in Hungarian*. Wiesbaden: Harrassowitz, 2011.
- Saarikivi 2011 — J. Saarikivi. Saamelaiskielet. Historiaa ja nykypäivää. I. Seurujärvi-Kari, P. Halinen, R. Pulkkinen (toim.). *Saamentutkimus tänään* (Tietolipas. Vol. 234). Helsinki: Suomalaisen Kirjallisuuden Seura, 2011. S. 77–119.
- Saarikivi, Grünthal 2005 — J. Saarikivi, R. Grünthal. Itämerensuomalaisten kielten uralilainen tausta. J. Vaattovaara, T. Suutari, H. Lappalainen, R. Grünthal (toim.). *Muuttuva muoto: kirjoituksia Tapani Lehtisen 60-vuotispäivän kunniaksi* (Kieli. No. 16). Helsinki: Helsingin yliopiston suomen kielen laitos, 2005.
- Salminen 2001 — T. Salminen. The rise of the Finno-Ugric language family. Ch. Carpelan, A. Parpola, P. Koskikallio (eds.). *Early Contacts between Uralic and Indo-European: linguistic and archaeological considerations* (Suomalais-Ugrilaisen Seuran Toimituksia. Vol. 242). Helsinki: Suomalais-Ugrilainen Seura, 2001. P. 385–396.
- Salminen 2002 — T. Salminen. Problems in the taxonomy of the Uralic languages in the light of modern comparative studies. A. E. Кибрик (ред.), Т. Б. Агранат, О. А. Казакевич (сост.). *Лингвистический беспредел: сборник статей к 70-летию А. И. Кузнецовой*. М.: Издательство Московского гос. университета, 2002. С. 44–55 (T. Salminen. Problems in the taxonomy of the Uralic languages in the light of modern comparative studies. A. E. Kibrik (ed.), T. B. Agranat, O. A. Kazakevich (comp.). *Lingvisticheskiy bespredel: sbornik statey k 70-letiyu A. I. Kuznetsovoy* [Linguistic lawlessness: a collection of articles dedicated to the 70th anniversary of A. I. Kuznetsova]. Moscow: Moscow State University Press, 2002. P. 44–55).
- Sammallahti 1998 — P. Sammallahti. *The Saami languages. An introduction*. Käräsjohka: Davvi Girji, 1998.
- Sammallahti 1999 — P. Sammallahti. Saamen kielen ja saamelaisten alkuperästä. P. Fogelberg (toim.). *Pohjan poluilla. Suomalaisten juuret nykytutkimuksen mukaan* (Bidrag till kannedom Av Finlands natur och folk. Vol. 153). Helsinki: Suomen Tiedeseura, 1999. S. 70–90.
- Sammallahti 2001 — P. Sammallahti. The Indo-European loanwords in Saami. Ch. Carpelan, A. Parpola, P. Koskikallio (eds.). *Early Contacts between Uralic and Indo-European: linguistic and archaeological considerations* (Suomalais-Ugrilaisen Seuran Toimituksia. Vol. 242). Helsinki: Suomalais-Ugrilainen Seura, 2001. P. 397–416.
- Sammallahti 1988 — P. Sammallahti. Historical phonology of the Uralic languages. D. Sinor (ed.). *The Uralic languages. Description, History and Foreign Influences*. Leiden; New York; København; Köln: Brill, 1988. P. 478–554.

- Schindler 1936 — J. Schindler. Zu einigen Lehnwörtern im Finnischen. *Die Sprache*. 1936. Bd. 9. S. 203–206.
- Schmid 1979 — W. P. Schmid. Zur Frage der Datierung Iranischer Lehnwörter in den Finnisch-Ugrischen Sprachen. C. Gläser, J. Pusztay (hrsg.). *Festschrift für Wolfgang Schlachter zum 70. Geburtstag* (Veröffentlichungen der Societas Uralo-Altaica. Bd. 12). Wiesbaden: Harrassowitz, 1979. S. 265–270.
- Setälä 1912 — E. N. Setälä. Eine arische Bezeichnung des Meeres in der finnischen Volkspoesie. *Festschrift Vilhelm Thomsen zur Vollendung des siebenzigsten Lebensjahres am 25. Januar 1912 dargebracht von Freunden und Schülern*. Leipzig: Harrassowitz, 1912. S. 188–191.
- Setälä 1928 — E. N. Setälä. Einige vor- und uralische *-er* und *-r-* Wörter in den finnisch-ugrischen Sprachen. *Ungarische Jahrbücher*. 1928. Bd. VIII. S. 298–308.
- SMS — *Suomen murteiden sanakirja*. Kotimaisten kielten keskuksen verkkojulkaisu 30. Helsinki: Kotimaisten kielten keskus. 2012. Available at: <http://kaino.kotus.fi/sms>. Constantly updated. Last update 18.05.2018 (accessed in August 2018).
- SSA — E. Itkonen, U.-M. Kulonen (päätoim.). *Suomen sanojen alkuperä. Etymologinen sanakirja*. T. I–III. Helsinki: Kotimaisten kielten tutkimuskeskus; Suomalaisen Kirjallisuuden Seura, 1992–2000.
- TschWB — A. Moisio, S. Saarinen. *Tscheremissisches Wörterbuch*. Aufgezeichnet von V. Porkka, A. Genetz, Y. Wichmann, M. Räsänen, T. E. Uotila und E. Itkonen (Lexica Societatis Fenno-Ugricae. Vol. XXXII) Helsinki: Suomalais-Ugrilainen Seura; Kotimaisten Kielten tutkimuskeskus, 2008.
- Tunkelo 1913 — E. A. Tunkelo. Wortgeschichtliche Beiträge. *Finnisch-Ugrische Forschungen*. 1913. Bd. 13. 74–119.
- UEW — K. Redei et al. *Uralisches Etymologisches Wörterbuch*. Wiesbaden: Harrassowitz, 1988.
- Uotila 1973 — E. Uotila. *Zur Etymologie von finn.* sampa (Euroasiatica. 2; 4). Napoli: Istituto Universitario Orientale, 1973.
- Vilkuna 1933 — K. Vilkuna. Ein frühurarisches lehnwort, fi. *ola* ‘feuerstein, kiesel’. *Finnisch-Ugrische Forschungen*. 1933. Bd. 21. S. 160–162.
- Windfuhr 2009 — G. Windfuhr. Dialectology and topics. G. Windfuhr (ed.). *The Iranian Languages*. London: Routledge, 2009. P. 5–42.
- Zhivlov 2006 — M. A. Живлов. Реконструкция праобско-угорского вокализма. Дисс. ... канд. филол. наук. М.: Институт языкознания РАН, 2006. (M. A. Zhivlov. Rekonstruktsiya praobsko-ugorskogo vokalizma [Reconstruction of Proto-Ob-Ugric vocalism]. Candidate thesis. Moscow: Institute of linguistics, 2006).
- Zhivlov 2013 — M. A. Живлов. Андроновский арийский язык. Ю. Б. Коряков, А. А. Кибрик (ред.). *Языки мира. Реликтовые индоевропейские языки Передней и Центральной Азии*. М.: Academia, 2013. С. 217–220 (M. A. Zhivlov. Andronovskiy ariyskiy yazyk [Andronovo Arian language]. Yu. B. Koryakov, A. A. Kibrik (eds.). *Yazyki mira. Reliktovyye indoyevropeyskiye yazyki Peredney i Tsentralnoy Azii* [Languages of the world. Relict Indo-European languages of the Anterior and Central Asia]. Moscow: Academia, 2013. P. 217–220).
- Zhivlov 2014 — M. Zhivlov. Studies in Uralic vocalism III. *Voprosy yazykovogo rodstva. Journal of Language Relationship*. 2014. No. 12. P. 113–148.