

Santeri Junttila

Department of Finnish, Finno-Ugrian and Scandinavian Studies
University of Helsinki

The prehistoric context of the oldest contacts between Baltic and Finnic languages

Dating and locating the ancient contacts between Baltic and Finnic is a crucial question when searching for the origins of the Finnic languages. Evidence gained from linguistic palaeontology seems to place Proto-Uralic in the Volga-Kama Basin, some 2000 kilometres east of the Baltic, in a region where the Uralic Mari and Udmurt languages are still spoken today (see Toivonen 1952 for a well-detailed study of the field and Häkkinen 2009 for a somewhat revised view). However, there is no clear linguistic or archaeological evidence to tell us when Proto-Uralic broke down into its different daughter languages and when one of these, Proto-Finnic, had left this eastern area and spread to the shores of the Baltic Sea. In order to reconstruct the process and its different stages we require information that can be provided by the Baltic loanwords.

As the Baltic loanwords are not attested in the more eastern Uralic branches, with the exception of a relatively few lexical items in Mordvinic (cf. van Pareren 2008 and Grünthal, this volume, for a recent detailed overview of the question), we must assume that the contacts took place when Finnic already was an independent branch within the Uralic language family or was at least in the process of breaking off. The contacts cannot be located far away from where the Baltic languages are or have been spoken. The area in which the Baltic languages were spoken was prehistorically much wider than it is today, since the major hydronyms of a vast area between Moscow and the mouth of the Vistula are of Baltic origin (Toporov – Trubačev 1962). The Volga-Kama Basin lies still too far east to be included in a list of possible contact locations. Instead, we could look for the contact area somewhere between Estonia in the west and the surroundings of Moscow in the east, a zone with evidence of Uralic settlement in the north and Baltic on the south side. Since present-day Finland lies quite far away from this zone, the discussion regarding the areal dimension of the contacts has concentrated on whether to include Finland in the contact area or not, and this question has chronological implications. There have been two main concurrent hypotheses concerning the assumed contacts in the territory of present-day Finland, firstly, the alleged migration of the Finnish settlement and, secondly, its continuity on the northern side of the Gulf of Finland. In addition, some other models have also been proposed. Here we shall discuss these theories and their strong and weak points.

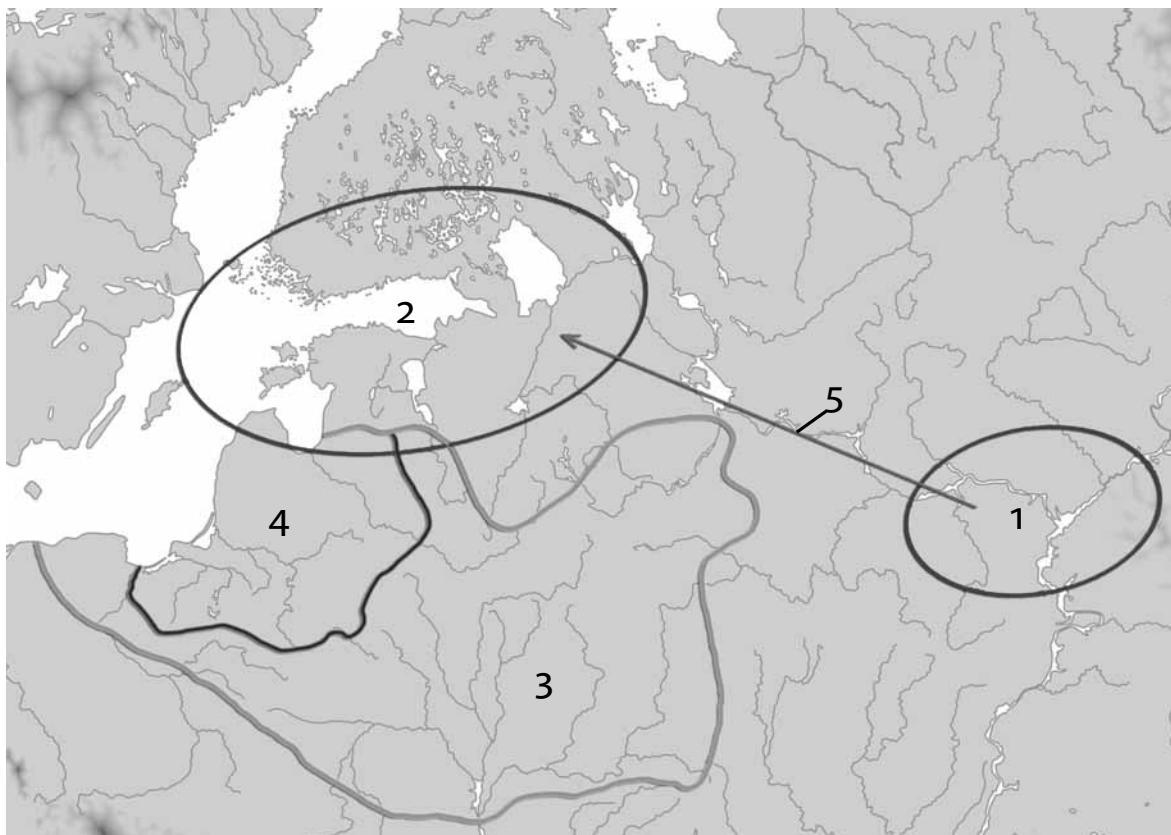


Figure 1. Prehistoric Balts as the southern neighbours of Proto-Finnic speakers. 1 = The approximated area of Proto-Uralic. 2 = The approximated area of Finnic during the Iron Age. 3 = The area of ancient Baltic hydronyms. 4 = The area of Baltic languages in about 1200 AD. 5 = The problem: When did Uralic expand westwards and when did it meet Baltic?

The migration theory

The migration theory argues that the Proto-Finns arrived at the shores of the Baltic Sea in the Iron Age (cf. also the introduction in this book). Accordingly, the Baltic–Finnic contacts took place somewhere east of present-day Estonia, when the Proto-Finns were still moving westwards. After that, Proto-Finnic split, and the future Finns moved to Finland, either from the east, or from the south over the Gulf of Finland, or both. The large stock of Baltic loanwords indicates very intensive contacts. This hypothesis was first suggested by Vilhelm Thomsen in his *magnum opus* on the question, *Beröringer mellem finske og baltiske Sprog* (1890), which still remains the most extensive study on the subject.

The idea of a Finnic migration into Finland in the Iron Age is much older than Thomsen. It had been presented already by Henrik Gabriel Porthan (1859: 46), the initiator of the research into the history of Finland, who actively developed his ideas by adopting an interdisciplinary approach. The idea was probably based on a general conception of the Migration Period as a chaotic era that gave birth to the European nations. Thomsen (1890: 151) still connected the movements of the Finnic peoples with the Slavic migrations northward from about the 8th century, and thus estimated the time of Baltic–Finnic contacts at just a couple of centuries before them, between 0 and 500 AD. According to Thomsen, the Baltic–Finnic contacts would have had to begin before the contacts between Finnic and Germanic, since the Germanic loanwords have not gone through all the same Finnic phonetic changes.

In 1905, Finnish archaeologist Alfred Hackman modified Thomsen's theory based on the archaeological data that had rapidly increased in the meantime. Hackman (1905: 353) claimed an earlier migration of Finns over the sea from Estonia from at least the 4th century on, since the material culture of that period seemed to originate from south of the Gulf of Finland. On this basis, Emil Nestor Setälä (1916: 499–500), the professor of Finnish language who imported the Thomsenian method to Finno-Ugrian studies, assumed that the beginning of Baltic–Finnic contacts took place in the last centuries BC.

The continuation theory

The continuation theory was presented in Estonian archaeologist Harri Moora's works (1952, 1956, 1958). Moora insisted that Proto-Finns had inhabited the Baltic Sea shores since at least the Neolithic period. The Baltic–Finnic contacts took place when the local Neolithic Combed Ware culture, claimed to be Uralic, met the intrusive Indo-European Battle Axe culture arriving in Estonia and Finland. Moora dated the Battle Axe culture between 2000 and 1800 BC, and proposed that the contacts with Germanic began in the Bronze Age with influence from Scandinavia.

The continuationists claimed a lack of evidence of either any mass migration over the Gulf of Finland or any migration later than the Neolithic period to the Baltic area from the east. This view gained support when Carl Fredrik Meinander (1969), based on new findings in Finland, pointed out that there was continuity from the Finnish Bronze Age to the Iron Age. The similarities between the Iron Age material from Finland and Estonia could be explained as a result of simultaneous Scandinavian influence. Moreover, the Baltic loanwords seem to indicate a level of culture that is clearly lower than that of the Iron Age. This fact was transmitted by the 19th century researchers simply by assuming a Stone Age cultural level for all the Uralic peoples until the Migration Period, a prejudice soon disproved by archaeology.

Looking for a third option

The reason for such a huge divergence between the two approaches lies in the lack of any traces of Baltic influence in Finland after the Neolithic spread of the Battle Axe culture. Either the Battle Axe culture has to be combined with a Baltic language, or a Finnic tongue must have spread later to Finland from the vicinity of the Baltic peoples. A third alternative is to explain the prehistoric role of the Gulf of Finland more as a route of communication than as a barrier, as some Finnish linguists and archaeologists have done since Terho Itkonen first proposed it in 1972. Itkonen (1978, 1983) opposed both too-recent Iron Age and too-distant Stone Age datings for Proto-Finnic, as these were incompatible with linguistic data.

On the other hand, the early existence of a Finnic language on the south side of the Gulf of Finland and a pre-Iron Age dating for the Baltic–Finnic contacts there do not conflict with the supposed Iron Age migration of the Finns. These ideas, presented by Moora as early as 1932, were simply not interesting enough for the contemporary Finnish researchers before Meinander combined them with the idea of a continuation of settlement on the Finnish side. Moora combined the Baltic–Finnic contacts with a burial type spreading from East Prussia in the late Bronze Age. Swedish linguist Karl Bernhard Wiklund complemented this Bronze Age model with his theory on the prehistory of the Saami (Wiklund 1947). According to Wiklund, the proposed language shift from a non-Uralic Pre-Saami to the Uralic Proto-Saami took place through contact with the Proto-Finnic culture during migrations caused by an overall climate cooling during the Bronze Age. Thus the Baltic loanwords shared with Saami must be older (cf. also Aikio's article in this book).

Moora's Bronze Age theory was later refuted by Moora himself (Moora 1956: 75–80), since the burial type in question proved to have spread not from East Prussia but from Scandinavia. Another kind of Bronze Age dating is provided by Alfred Senn (1943, 1951) and Kustaa Vilkuna (1948: 283), who proposed that the Baltic languages had spread from the east to the present-day Baltic States where the Finnic languages were already spoken. This hypothesis is based on a supposed Finnic origin of several toponyms in Lithuania and East Prussia, claimed by i.e. Rozwadowski (1913: 61–61, 66–67), a conception that is highly improbable though still gaining support in Lithuania and Poland.

The first plausible attempt to adjust the relative chronology of Uralic linguistics to the discoveries of modern archaeology, free from supposing lengthy continuation periods without any recognisable development in languages, was made by the Finnish archaeologist Ville Luho in 1968. Luho combined the arrival of Proto-Finnic with the eastern contacts of the Bronze Age Textile Ceramics of Finland (and lesser extent, Estonia). Luho's model seems to fit well with the ideas expressed by Terho Itkonen.

Recent discussion on the topic

The loanword studies of Finnish Germanicist Jorma Koivulehto since the 1970s have proved long-lasting contacts between Finnic and Germanic lasting from Pre-Germanic to the present. The oldest Germanic loanwords seem to have gone through all the same phonetic changes as the Baltic ones have. Thus it is no longer correct to assume that the Baltic–Finnic contacts would have begun earlier than the Germanic–Finnic ones. (Cf. Koivulehto 1997 for further details.)

The migration theory has very little support today, since there are no changes in the archaeological material, which are considered radical enough to prove a migration into Finland (Salo 1984). The strongest argument to exclude Finland from the contact area is still valid: there are no unambiguous traces of a Baltic population in Finland, neither in archaeological findings nor in toponymy. Moreover, Moora's continuation theory was based on uncalibrated radiocarbon dates proven to be much too recent, since the calibrating methods have developed to become more accurate.

Moora's model found support from Finnish archaeologists between the 1970s and the 1990s, but all the attempts to adjust it into the relative chronologies of Uralic and Indo-European resulted in controversies. The only linguistically well-grounded version of the Stone Age continuation theory was presented by Mikko Korhonen in 1976. Its validity, however, became heavily threatened when Koivulehto 1983a-b proved the existence of a Late Proto-Indo-European or Pre-Baltic loanword layer in Saami, Finnic, and Mordvinic. Since this layer must precede the Baltic one and it was presumably acquired in the Baltic Sea region, Koivulehto posited it on the horizon of the Battle Axe period. This forces a later dating for the Baltic–Finnic contacts.

Today the Battle Axe culture is dated at 3200 to 3000 BC, a period far too remote to correspond linguistically with Proto-Baltic (Kallio 1998a). Petri Kallio (2006) combines the arrival of Uralic in the Baltic area with the Seyma-Turbino phenomenon, a Bronze Age trading network dated to about 1900 BC. Kallio (2008) insists that the Baltic–Finnic contacts lasted over a millennium in the Bronze Age, on both the northern and southern shores of the Gulf of Finland, in spite of the lack of toponymic support. Thus the contacts need not have been as intensive as it was previously thought.

Since the Baltic contacts began at a very initial phase of Proto-Finnic, the language must have been relatively uniform at that time. Hence, if we consider that the layer of Baltic loanwords may have spread over the Gulf of Finland at that time, we could also insist that the whole of the Proto-Finnic language did so. The distribution of the Baltic loanword stock in the Finnic languages would be explained, if this kind of language diffusion had occurred after the Baltic–Finnic contacts. The Seyma-Turbino phenomenon, or the eastern contacts of Textile Ceramics, may explain the spread of a Uralic language up to Finland and Estonia, but a Finnic language may later have infiltrated into Finland without a mass migration, replacing the earlier Uralic tongue spoken there.

There is, though, one open question not easily combined with this kind of model: the most plausible candidate for a Pre-Finnic Uralic language of Finland is Proto-Saami, but Saami may possess some Baltic loanwords not existing in Finnic, as claimed by Sammallahti 1977: 123 and 1984: 139. However, these stems are very few and may as well be explained by lexical loss in Finnic.

Since Thomsen, there have been several attempts to uncover chronological layers among the Baltic borrowings in Finnic. The most promising phonological criterion has been proposed by Koivulehto (1990: 152): the Baltic **ā* and **ē* yielded Finnic **a* and **ä* in the loanwords gained before the Proto-Finnic non-narrow long vowels had emerged, but Finnic **oo* and **ee* in later loans.

Later, scholars have also discussed the possibility of geographically restricted strata of Baltic loanwords, so-called separate borrowings in northern and southern Finnic. This idea was suggested by Sammallahti (1977: 123) and studied by Seppo Suhonen and Lembit Vaba, both having published a survey of the Finnic distribution of each Baltic loanword (Suhonen 1988 and Vaba 1990b). However, mere distribution is never proof of the separate origin of a loanword, since any word may have disappeared from any dialect or language. The distribution should be compared to phonological substitution patterns.

The role of loanword semantics in dating the contacts

Since a migration is no longer seen as prerequisite for the spread of language, the very existence of a Finnic language in Finland before the Iron Age remains disputed. More importance should be placed on the semantics of loanwords when dating prehistoric language changes.

Borrowings mainly indicate a certain cultural level of the time of contact, since new words, among them words denoting innovations, are much more likely to spread from one language to another than old ones. The more loanwords there are in a specific field, the higher their indicative value: e.g. the oldest terminology for wooden constructions in Finnic languages is mostly of Baltic origin. Even more accurate information may be acquired by asking which innovations the language-speaking community must have been familiar with during the contact period.

Thomsen (1890: 152) concluded that hardly any of the Baltic loanwords contradict the assumption that the contacts began during the Stone Age – e.g. Finnic *kirves* ‘axe’ could initially have been used for the stone axe – though none of these loanwords speak in favour of it either. The latter is actually a superfluous if not even misleading addition, since no loanword, based on its meaning alone, can be dated to an age at least as old as a given date or era. In other words, semantics may never define a *terminus ante quem*. This restriction, excellently formulated by Cowgill (2012: 66–68), was already realized by Setälä (1891: 460).

On the contrary, it should be possible to define a *terminus post quem* of the contacts based on the semantics of the borrowings, if they include any words

denoting innovations. Kalima (1936: 199), for instance, opposes Thomsen, expressing from a linguist's point of view that a Stone Age dating for the Baltic–Finnic contacts seems improbable, since it would be too difficult to use a stone axe to carve the constructions denoted by *seinä* 'wall', *silta* 'bridge; floor', *pirtti* 'a small wooden hut for living, bathing or both', *aitta* 'granary', and *orsi* 'perch, beam'.

In other words, we cannot actually say anything about the beginning of the contacts on the basis of semantics only. Instead, the *terminus post quem* of the final phase of the contacts can be defined by looking for the most recent innovation indicated by the borrowings. We just have to keep in mind that the meanings of the words are not stable, but rather keep changing just as any other part of the language changes as a system.

For example, Finnish *hirsi* 'log' (cf. B59 below) may be a Baltic loanword, but that does not implicate that the Finnic peoples would have learnt the building of log houses when borrowing the word, since its possible Lithuanian equivalent *žardas* denotes 'a grate for drying flax'; the former meaning may have been 'wattle' or 'a branch used in weaving a wattle', a meaning which has survived in some Estonian dialects. As a construction technique, wattle and daub is certainly much more ancient than log building.

Words denoting innovations

It would require an uncommon kind of co-operation, activating specialists in linguistics, archaeology, and all other disciplines studying prehistory to find and define the most recent layer of innovations indicated by the Baltic loanwords in Finnic. To start with, in this article we have identified and grouped below all suggested Baltic etymologies for Finnic words possibly datable by means of research into the physical world. Not all *Kulturwörter* have been listed: all toponyms, ethnonyms, and the relatively well-represented words denoting family members and mythological creatures have been excluded. The erroneous etymologies discussed in Junttila 2011 have also been left out, unless they have reappeared in a more recent study (i.e. Vaba 2011a)¹.

The words are given in Finnish, if not indicated otherwise. Only the stems missing in Finnish are given in another Finnic language. However, the indicative meanings of a word given aim at covering all its Finnic cognates.

1. The author owes special thanks to Dr. Laimute Balode for checking the Eng. translations for the Lithuanian and Latvian words.

Group I. Game and hunting

In this group, as well as in most of those that follow, it is not possible to sharply and exclusively determine which words denote innovation and which do not. Even the names of wild animals could be added to the list, since their adaptation may indicate a new capturing technique, a change in diet or clothing, or new methods of trade.

A. Relatively clear etymologies

1. *ansa* ‘trap’ ~ Lith. *qsa* ‘ear, handle’, Latv. *osa* ‘ear, handle’ (Donner 1884: 267).
2. *lahto* ‘kind of bird trap’ ~ Latv. *slazds* ‘trap’ (Thomsen 1890: 219).
3. *hirvi* ‘elk; (Est) deer’ ~ OPr. *sirvis* ‘deer’ (Thomsen 1890: 225).
4. *tarvas* ‘aurochs (?)’ ~ Lith. *tauras*, Latv. *taurs* ‘aurochs’ (Thomsen 1890: 228).
5. Veps *hähk* ‘mink’ ~ Lith. *šeškas*, Latv. *sesks* ‘polecat’ (Thomsen 1890: 223).
6. SEst *kähr* ‘European badger’ ~ Lith. *keršas* ‘black and white striped’ (Vaba 1995: 82).

B. Dubious etymologies

1. *peura* ‘deer, reindeer’ ~ Lith. *bendras* ‘common’ (Koivulehto 1988: 26). The semantic leap is very large.
2. *portimo* ‘stoat; (Lude) weasel’ ~ Lith. *spartus* ‘quick’ (Liukkonen 1999: 106–07 Baltic **sparteiva*). The proposed original is an unattested derivative. Finnic *m* ~ Baltic. *v* is irregular. The Finnic *-ti-* implies a borrowing posterior to the Early PFi **ej > i* change, which would have yielded **-si-*.
3. Kar. *utra*, Est. *udras* ‘European otter’ ~ Lith. *ūdra*, *ūdras* id. (Nuutinen 1994: 116–27) A Germanic origin (PGmc **utra-*) would suit as well.

C. Erroneous etymologies

1. *paula* ‘lace, snare’ ~ Lith. *pakelė*, Latv. *pakeles* pl. ‘garter’ (Donner 1884: 269)². Phonetically unsuitable.
2. *kärppä* ‘ermine’ ~ Lith. *kirbas* ‘decorative piece of fur’ (Büga 1908: 191). Baltic *-rb-* would not yield Finnic *-rpp-*.
3. Est. *naarits* ‘mink’ ~ OPr. *naricie* ‘polecat’ (Saareste 1924b: 84–85). Both Finnic and Baltic words are loans from Slavic (Russ. *norica* id, Kalima 1952: 130).³

2. In Junttila 2011, there is a mistake in the first table: the Lith. *pakelė* ‘garter’ mentioned in connection with the Fi word *paula* is not found in the dictionaries visited.

3. This etymology is missing in Junttila 2011.

Two etymologies, irrespective of their likeliness, should be kept outside this semantic group: *virka* ‘snare, trap; line, row; career’ ~ Latv. *verdze* ‘row; heap’ (Kalima 1941: 210–11) and *vihi* ‘scent, surmise’ ~ Lith. *vėžė* ‘track’, Latv. *vizināt* ‘to ride’ (Uotila 1986a Late PFi **vihja*). The connections with trapping here seem secondary as the original Finnic meaning of Finn. *virka* and *vihi* are ‘row’ and ‘path’.

Smaller animals represented in the layer of Baltic loanwords fall clearly outside the scope of this article. Bird names are especially numerous among the proposed Baltic etymologies, but their value is highly questionable due to the onomatopoeic character of bird names in general. Since the likeliness of these etymologies is extremely hard to evaluate, a mere list would suffice here: *harakka* ‘magpie’, *kauru* ‘curlew, (Est.) loon’ *kiuru* ‘skylark’, *käki* ‘cuckoo’, *lielo* ‘Caprimulgus’, *lintu* ‘bird’, *peippo* ‘chaffinch’, *rastas* ‘blackbird’, *teeri* ‘black grouse’ Est. *värblane* ‘sparrow’, SEst. *mõltsas* ‘green woodpecker’, Liv. *kill* id., and Liv. *palandeks* ~ Vote *pallas* ‘pigeon’. A Baltic origin also has been proposed for *siipi* ‘wing’ (Vaba 2011b: 48).

Group II. Fishing equipment and fish

A. Relatively clear etymologies

7. *toe* ‘fish weir’ ~ Lith. *takišys*, Latv. *tacis* id. (Thomsen 1890: 226 Baltic **takis*).
8. *siula* ‘side rope of a seine; side fence of a reindeer enclosure’ ~ Lith. *tinklas*, Latv. *tīkls* ‘fish net’ (Koivulehto 1979a: 267–69).
9. *tuulas* ‘tool for spear fishing with a light’ ~ Latv. *dūlājs* ‘fishing light’, Lith. *dūlis* ‘smoking punk’ (Thomsen 1890: 168).
10. *tuura* ‘ice pick’ ~ Latv. *dūre* ‘fist’, Lith. *durti* ‘to jab, stick’ (Thomsen 1890: 168–69).
11. *lohi* ‘salmon’ ~ Lith. *lašiša*, Latv. *lasis* id. (Thomsen 1869: 55).
12. *sampi* ‘sturgeon’ ~ Lith. *stambus* ‘large’ (Liukkonen 1999: 124).
13. *ankerias* ‘eel’ ~ Lith. *ungurys*, OPr. *angurgis*⁴ id. (Thomsen 1869: 80).
14. Liv. *vāgal* ‘burbot’ ~ Lith. *vėgėlė*, Latv. *vēdzele* id. (Thomsen 1890: 238).
15. Est. *vāhi* ‘crab’ ~ Lith. *vėžys*, Latv. *vēzis* id. (Thomsen 1890: 241).

4. Gliwa (2009: 183) combines also Est. *vingerjas* ‘*Misgurnus fossilis*’ with Lith. *vingurys* ‘eel’, a contamination form of *ungurys* and IE **weng-* ‘to bend’.

B. Dubious etymologies

4. Est. obs. *nāri* : *nārju* ‘weir’ ~ Lith. *nėris* ‘knitwork’ (Vaba 1992 < Baltic **nėrija*). As a weir is not knit but woven, Russ. *ner’ot* ‘fish trap’ suits semantically better as a source, though it implies a shortening of the Est. word (< **nārjut*).
5. *ailo* ‘string of a fish net’ ~ Lith. *ailė* ‘stick holding a net’, Latv. *ailis* ‘wooden support of a fish weir’ (Endzelīns 1923–25: 13 (Būga)). However, synonymous with *aina* ? < PGmc **ainia-* ‘juniper’ (Karsten 1936: 435–37).
6. *ahrain* ‘fish spear’ ~ Russ. *ostrogá* id. (Liukkonen 1999: 102 Baltic **aštragā*). The variation *-hr-* ~ *-tr-* in Finnic could be, according to Liukkonen, better explained from Baltic **-štr-* like in *ohra* (B17) than Slavic **-str-*. Liukkonen ignores the Eastern Finnic variant *-sr-*.
7. SEst. *eherüs*, *iherüs* ‘brown trout’ ~ Lith. *ešerys*, Latv. *asaris* ‘perch’ (Ojansuu 1921: 5). However, brown trout and perch look quite different from one another.
8. *seipi* ‘dace’ ~ Latv. dial. *stiepatš* id. (Nuutinen 1987). The Latvian words remain without etymology.

C. Erroneous etymologies

4. *vata* ‘type of small seine’ ~ Lith. *nevadas* id. (Donner 1884: 265). Finnic < Germanic, cf. Swed. *vad* ‘seine’ (Thomsen 1890: 234).
5. *ahingas* ‘fish spear’ ~ Lith. *asnis*, *ašnis* ‘mane hair; rye sprouts; scythe blade’, Latv. *asns* ‘erupting germ’ (Liukkonen 1999: 15–16). Phonological problems (Baltic **-šn-* ~ Finnic *-h-*) and hardly compatible semantics.
6. *tarpa* ~ *tarpo* ‘fisherman’s stick’ ~ Latv. *dalba* ~ *dalbs* ‘fork; stem; fishing stick’, Lith. *dalba* ‘crowbar, lever’, OPr. *dalptan* ‘iron pick’ (Thomsen 1890: 165–66). The relation Baltic *l* ~ Finnic *r* is problematic. The Latv. meaning ‘fishing stick’ may be < Finnic. Finnic *tarpa* ? < PGmc **staura-*, cf. Swed. *stör* ‘stick’ (Koivulehto 1977: 175).
7. *kuuja* ‘type of salmon’ ~ Lith. *kuoja* ‘roach’ (Endzelīns 1909: 30). The two fish species are very different. Probably Finnic *kuuja* ← *kuu* ‘fat’ (Sebestyén 1935: 73).
8. *taimen* ‘trout’ ~ Lith. *dygti* ‘to germ’, *daigas*, *diegas* ‘shoot, spear; seedling’ (Ritter 1993: 156 Baltic **daigmen*). Semantically unfounded.
9. *ahven* ‘perch’ ~ Lith. *ašmuo* ‘sharp’ (Thomsen 1890: 147, Liukkonen 1999: 16–18). A very speculative etymology and phonologically excluding Saa vuosko ‘perch’.
10. Est. *lest* ‘flounder’ ~ Lith. *plekšnė*, Latv. *plekste* id. (Viitso 1983: 272) or ~ Latv. *leste* id., Lith. *lekštas* ‘flat’ (EES). Phonologically only a recent loan from Latvian is possible (Est. *s* ~ Latv. *s*).
11. *hauki* ‘pike’ ~ Lith. *šauti*, Latv. *šaut* ‘to shoot’ (Liukkonen 1999: 40–42 Baltic **šaukē*). The proposed original is a hypothetical derivative from a root with no credible connection to the fish name.

12. *särki* ‘roach’ ~ Latv. *sarkans* ‘red’ (Liukkonen 1999: 138–40 Baltic **sar-k-*). The Finnic word = Md(E) *serge* id. shares the front vocalism. Moreover, the word has phonologically regular cognates in Mari and Ob-Ugrian (see SSA III: 241).
13. Est. *linask* ‘tench’ ~ Lith. *lynas* id. (Ojansuu 1921: 22–23). Est. < Russ. *lin’*, *lin’ok* id. (Thomsen 1890: 197).

The Baltic explanation for *pola* ‘float or hook of a kind of fish trap’ (~ Latv. *spals* ‘handle of a tool’ < Baltic **spala-*, Koivulehto 1987: 204) should be left out, since the meaning of both the proposed original and the Md cognates of the Finnic word (Erzya *pulo*, Moksha *pulâ*) may be reverted to ‘handle, shaft’ and are not necessarily connected to fishing. The same applies to *ahingas* (C5), if it is connected to Lith. *akstinas* ‘thorn; reason’ as suggested by Thomsen (1890: 157).

Group III. Forest beekeeping

This semantic category has been researched especially by Vaba, who has posited a hypothesis that the forest beekeeping in southern Estonia emerged as a result of Baltic contacts (Vaba 1990a).

A. Relatively clear etymologies

16. *vaha* ‘wax’ ~ Lith. *vaškas*, Latv. *vasks* id. (Weske 1890: 170)

B. Dubious etymologies

9. Est. *kärg* (dial. *kärr*, *käri*, *kärv*) ‘honeycomb’ ~ Lith. *korys*, Latv. *kāres* id. (Vaba 1990a: 174–75). Est. *kärg* = MdE *ke’az*; possibly = Mari *karaš*, *kāraš*, Udm. *karas* (see Pareren 2008: 27). Perhaps Udmurt and Mari have borrowed the Finnic-Mordvinic word, as Tatar and Chuvash have?
10. SEst. obs. *kõno* ‘rope ladder (used in collecting honey)’ ~ Lith. *genys*, Latv. *dzenis* ‘foot hook for climbing on trees’ (Vaba 1990a: 176–77). Semantically problematic.
11. SEst. obs. *läng* ‘hoist’ ~ Latv. *liedzējs* ‘safety cord’ or = Mari *leņņe* id. (Vaba 1990a: 177)

C. Erroneous etymologies

14. Est. *taru* ‘hive’ ~ Lith. *dravis*, Latv. *drava* ‘forest beehive’ (Manninen 1926: 18). There are no certain cases of a metathesis of an initial consonant cluster among the Baltic loanwords (cf. C31). Certainly ← *tarha* (A17).

Group IV. Agriculture

A. Relatively clear etymologies

17. *tarha* ‘garden, enclosure’ ~ Lith. *daržas*, Latv. *dārzs* id. (Thomsen 1869: 73).
18. *kulo* ‘forest fire; unmown hay’ ~ Latv. *kūla* ‘last year’s grass’, Lith. *kūlė* ‘threshing’ (Thomsen 1890: 190–91).
19. Est. *kõblas* ‘hoe’ ~ Lith. *kapl̃ys*, *skaplis* ‘pick’ (Toivonen 1917b: 36–38)⁵.
20. *vako* ‘furrow’ ~ Lith., Latv. *vaga* id. (Donner 1884: 267).
21. *siemen* ‘seed’ ~ Lith. pl *sėmenys* ‘linseed’ (Thomsen 1869: 5).
22. *siikanen* ‘(barley) awn’ ~ Lith. *dygas* Latv. dial. *dīgs* ‘thorn’ (Posti 1969).
23. *pelu* ‘husk, chip’ ~ Lith., Latv. *pelus*, OPr *pelwo* ‘husk’ (Thomsen 1890: 207).
24. *rouhia* ‘to bruise, mill’ ~ Latv. *krausēt* id., Lith. *kraušyti* ‘to strike’. (Kalima 1936: 156).
25. *vakka* ‘type of wooden vessel with a cap; cereal gauge’ ~ Lith. *voka* ‘cover, eyelid’, *vokas* ‘cereal gauge’, Latv. *vāks* ‘lid, cover’ (Koivulehto 1990: 152).
26. *talkoot* ‘bee, work party’ ~ Lith., Latv. *talka* id. (Donner 1884: 266).
27. *herne* ‘pea’ ~ Lith. *žirnis*, Latv. *zīrnis* id. (Thomsen 1869: 48).
28. *puuro* ‘porridge’ ~ Lith., Latv. *putra* id. (Thomsen 1890: 210).
29. *hiiva* ‘yeast’ ~ Lith. *šyvas* ‘gray; home-made ale’ (Plöger 1982: 93 (Koivulehto)).

B. Dubious etymologies

12. *metsä* ‘forest’ ~ Lith. *medis* ‘tree; wood’, Latv. *mežs* ‘forest’ (Thomsen 1869: 80). However, the word has also been compared to Saa *meahčči* ‘periphery’ and Hungarian *messze* ‘far away’ (see SSA II: 163).
13. *halme* ‘swidden being cultivated’ ~ Lith. *želmuo*, Latv. *zelmenis* ‘sprout’ (Thomsen 1890: 245–46). The concurring Germanic etymology (~ Swed. *halm* < PGmc **halmaz*, cf. ‘straw’, Toivonen 1917b: 6–8) is not worse in any sense.
14. *huhta* ‘burnt swidden’ ~ Baltic **šukta* ‘set in fire’ (Koivulehto 1991: 31–32). Later, Koivulehto (1999: 225–26) has preferred an Iranian original, since the proposed stem is not attested in Baltic.
15. *ätelä* ‘aftergrass’ ~ Lith. *atolas*, Latv. *atāls* id. (Thomsen 1890: 159–60). The Finnish word is attested only on the islands of the Gulf of Finland, and is thus most probably borrowed from Est. where it may in turn be a Latv. borrowing (Ojansuu 1916: 202).
16. *taimi* ‘seedling, plant’, cf. C7 (Thomsen 1869: 151). The Baltic form is hypothetical.

5. Est. *kõblas* certainly not ~ Lith. *kopla* ‘kind of ax’ (Nieminen 1945: 528)

17. *ohra* ‘barley’ ~ Lith. *aštrus* ‘acute, bitter’ (Ojansuu 1921: 27–28). In this book, Petri Kallio proposes an elegant possibility to avoid reconstructing **str* as the only three-consonant cluster in Early PFi by supposing *ohra* an Aryan etymology. That would drop also *ahrain* (B6) from among the Baltic loanwords.
18. Est. *lina* ‘flax, linen’ ~ Lith. *linai*, Latv. *lini* id. (Donner 1884: 265). As well < Slavic, cf. Russ. *l'on* (Thomsen 1890: 196).
19. SEst. *judras*, Liv. *juddōrz* ‘Camelina sativa’ ~ Lith. *judrios* Latv. *judras* (Thomsen 1890: 175). The Baltic word has remained thus far without an IE etymology, but it may be connected with Germanic **duđra-*, a name of diverse (yellow) plants, including *Camelina sativa* (either < PIE **d^hewd^h-* ‘yellow’ as in Schindler 1967, or ~ Sanskrit *dudhra-* ‘violent’, as in Orel 2003: 78), if the initial *j-* can be explained by a contamination with Lith. *judrus* ‘agile, frisky, stirring’. The South Estonian and Livonian words are probably of a later Latvian origin.
20. *sato* ‘harvest, (obs.) hayrick’ ~ Lith. *statà, stātas* ‘row of shocks’, Latv. *stats* ‘unit of grain or flax’ (Nuutinen 1989: 28–29). The Germanic cognate of the Baltic words (PGmc **stapa-*) suits as well as source.
21. *āes* ‘harrow’ Lith. *akėčios*, obs. *ekėčios* id. (Donner 1884: 263). A Germanic origin (PGmc **ayip-* ~ **ayep-*) is equally possible (Koivulehto 1971b: 591).
22. *viikate* ‘scythe’ ~ Latv. *izkaptis* id. (Nieminen 1955: 79). The explanation is phonologically very problematic, but perhaps not totally impossible.
23. *ruumen* ‘husk’ ~ Lith. *grūsti* ‘to beat, crush’ Latv. *grūst* ‘to shove, thrust’ (Thomsen 1890: 173 Baltic **grūd-men-*). The concurring Germanic explanation (~ Germ. *Krume* ‘crumb’, Hahmo 1990: 212) is semantically less satisfactory.
24. *pahmas* ‘cereal gauge; threshing vessel in a mill’ ~ Lith. obs. *bažmas* ‘amount, mass’ (Ojansuu 1921: 29). Vaba (1996b) tries to bridge the semantic gap.
25. *kārvās* ‘(a grain drying rack made of) a branchy tree stump’ ~ Lith. *kerėbla, kerėža* ‘small wizened tree, stump’ (Uotila 1970: 3–6). Both the Baltic and the alternative Germanic etymology (~ Old Norse *harfr* ‘harrow’ < PGmc **harbaz*, Koivulehto 1971b: 585–92) are phonologically somewhat tricky.
26. *olut* ‘beer’ ~ Lith., Latv. *alus* id. (Thomsen 1869: 55, 88). A Gmc origin is at least as plausible (PGmc **alup*, see SSA II: 264–65). Baltic < Germanic?
27. *metu* ‘mead’ ~ Lith., Latv. *medus* ‘honey’ (Setälä 1897). A Germanic origin is equally possible (PGmc **među-*, see SSA II: 164).

C. Erroneous etymologies

15. *moisio* ‘remote field; (Est.) manor’ ~ Lith. *mietas* ‘pale, picket, stake’, Latv. *miets* id. (Wiklund 1927: 308 Baltic **maita-+ -iōn*). An etymology with impossible phonology, highly hypothetical morphology and clumsy semantics.
16. *vannas* ‘ploughshare’ ~ OPr. *wagnis* id. (Paasonen 1909). Both the Finnic and the OPr words are borrowed from Germanic **waynaz* (Karsten 1915: 84–85, Nieminen 1944: 28–30). The ploughshare arrived in Finland during the Viking era (<<http://www.helsinki.fi/kansatiede/histmaatalous/peltoviljely/vetojuhdin.htm>>).
17. *sirppi* ‘sickle’ ~ Latv. *sirpis* id. (Donner 1884: 269). Both < Slavic, cf. Russ. *serp* (Thomsen 1890: 12).
18. *jyvä* ‘grain’ ~ Lith. *javai* ‘grain’ (Donner 1884: 264). A more remote IE origin is evident since the Finnic word has cognates in Permic (Paasonen 1896: 12–13).
19. Est. *singas* ‘sheath where the cereal germ grows’ ~ Lith. *digna* ‘rainbow, corona’, *dingti* ‘to disappear’ (Vaba 1997a). Implies overly long semantic leaps.
20. *sora* ‘gravel’ ~ Lith. *sora* ‘millet’. (Tihomirov 1906: 146). The relation is phonologically impossible and the Lith. word lacks any IE etymology (Smoczyński 2007: 583).
21. *ruis* ‘rye’ ~ Lith. *rugys* id. (Thomsen 1869: 144). Surely < Germanic **ruyiz*; there are no Finnic **ihi*-stems among the Baltic borrowings; the Baltic form would have yielded a Finn. form ***rue* (Thomsen 1890: 212–13).
22. SEst. *rügä* ‘rye’, cf. C19 (Ojansuu 1921: 35). Probably a contaminated form of Finnic **rukis* ‘rye’ (Mägiste 1934: 80).
23. SEst. *kesv* ‘barley’ ~ Latv. dial. *ciesva* ‘hard grass’ (Ojansuu 1921: 16–17). Nieminen (1946) has disproved this comparison by pointing out Lith. *kieša* ‘thicket’.
24. *porkkana* ‘carrot’ ~ Lith. *burkantas*, Latv. *burkāns* id. (Donner 1884: 266). The sound structure of the Finnic word is relatively recent and the first syllable *o* cannot result from Baltic **u*. Possible explanations have been suggested by Bentlin 2008: 246–49.
25. Est. *uba* ‘bean’ ~ Lith., Latv. *pupa* id. (Kalima 1936: 174). Phonologically very suspect.
26. Est. *pakal* ‘tow’ ~ Lith. pl. *pakulos*, Latv. pl. *pakulas* id. The Est. word may rather be explained through Slavic (Est. < Russian *pakl’a* ? < Baltic, Thomsen 1890: 205)⁶
27. *karpio* ‘cereal gauge’ ~ Lith. *karbija* ‘big woven vessel’, OPr. *carbīo* ‘mill case’ (Donner 1884: 267). Most possibly all these are from Slavic (Thomsen 1890: 183).

6. This etymology is missing in Junttila 2011.

28. Est. *rääts* ‘kind of sieve or basket’ ~ Lith. *rėtis* ‘sieve’ (Thomsen 1890: 141). The long *ä* and the final *-ts* indicate a later origin.
29. *sima* ‘mead’ ~ Lith. *syvas* ‘juice’ (Ojansuu 1921a: 36).
30. *kalja* ‘low-alcohol ale’ ~ Lith. *galia* ‘might, strength’ (Liukkonen 1999: 68–69). The semantic leap is too wide. Maybe < PIE **h₂al-ew-jo* (Kallio 1998b).

It is noteworthy that the stems A18 and B13–15 refer to primitive slash and burn agriculture, while none of the etymologies indicate more developed field cultivation: *pelto* ‘field’ is most likely a Germanic loan. Stem B12, the most common word for ‘forest’ in Finnic, is included here, since its existence implies an environment opposed to forest.

An abundance of weather expressions among the Baltic etymologies may also indicate a connection with agriculture, especially since they all indicate harmful phenomena from a farmer’s point of view: *helle* ‘hot weather’, *halla* ‘summer night frost’, *härmä* ‘mildew’, *?kylmä* ‘cold’, *kirsi* ‘ground frost’, *räntä* ‘sleet’ and *?pälvi* ‘snow-free spot on ground’. Note that all of these, with the exception of the first one, refer to cold weather events.

Group V. Milk cattle

A. Relatively clear etymologies

30. *vuohi* ‘goat’ ~ Lith. *ožys* id. (Thomsen 1869: 58)
31. *rieska* ‘fresh; fresh milk; fresh bread’ ~ Lith. *prėskas* ‘fresh, unsalted’ (Thomsen 1890: 209)
32. *mäntä* ‘piston’ ~ Lith. *mentė* ‘shoulder-blade’ (Budenz 1875: 389 ?)

B. Dubious etymologies

28. *muli* ‘hornless cow’ ~ Samog. *šmulas*, Latv. obs. *mūle* id. (Thomsen 1890: 226). The Finnic word is an *i*-stem, i.e. younger than PFi. However, the Finnic word may be ← **mula-* < Baltic just as *keli* ← **keljä* < Baltic (A53). See also B29 below.
29. *vohla* ‘kid’ ~ Lith. (diminutive) *oželis* ‘goat’ (Kalima 1936: 181). The absence of the vowel in the original second syllable may have been caused by the preceding *h*.
30. *hehko* ‘heifer’ ~ Lith. *ašva*, older *eschwa* ‘mare’ (Thomsen 1890: 146–47). The Finnic word could as well be ~ PGmc **exwaz* ‘horse’ although its feminine counterpart has not been attested.
31. *piimä* ‘sour milk; (Est) milk’ ~ Lith. *pyti* ‘to take milk’ (Larsson 1984 Baltic **pijimas*). The suggested original Baltic derivative is not attested.

C. Erroneous etymologies

31. *nauta* ‘cattle, bovine’ ~ Lith. *naudà* ‘advantage; property’ (Mikkola 1912). A Germanic origin (PGmc **nauta-*) is semantically much better: Swed. *nöt* ‘neat’ (see SSA II: 210)
32. Est. *tõug* ‘race’ ~ Lith. *daug* ‘much’, Latv. *daudz* id. (Kalima 1936: 170). Probably = *tõug* ‘harvest’
33. *kerma* ‘cream’ ~ Lith. *grėjimas*, Latv. *krējums* id. (Mäkeläinen 1978). There are no sure cases of metathesis of an initial consonant cluster among the Baltic loanwords.
34. Vote *suura* ‘cheese’ ~ Lith. *sūris* id. (Suhonen 1980: 205 (Ariste)). Most probably the Vote word is just a variant of *syyra* id. < Russ. *syr* id.
35. Liv. *sōira* ‘cheese’ ~ Latv. *siers* id. (Fraenkel 1965: 944–45). The regular Livonian representation of the Baltic diphthong **ai* ~ **ei* (> Lith., Latv. *ie*) is *ai*; *ōi* is possible in somewhat more recent loans.
36. Liv. *māndrōks* ‘piston’ ~ Lith. *menturė* id., Latv. dial. *mieturis* id. (Thomsen 1890: 141). A relatively recent loan because of the *-ks*-stem.
37. *maito* ‘milk’ ~ Lith., Latv. *maita* ‘carcass’ (Liukkonen 1999: 92–93). Semantically impossible.

Finnic *karja* ‘cattle’ may be excluded from this group, since its proposed Baltic and Germanic originals mean ‘army’ (OPr. *karia*, Lith. obs. *karias*, Germanic **harja-*. (Būga 1980: 27, Nissilä 1954: 254–55). The same applies to two names of milk vessels: *rainta* ‘milking vessel’ ~ Lith. *rakandas* ‘kitchen utensil’ (Ojansuu 1921: 34–35) and *lännikkö* ‘a shallow wooden milk vessel’ ~ Lith. *lenta* ‘board, plank, table’ (Uotila 1970: 8–10 ← **lāntā* ‘linden’).

Group VI. Sheep and wool

A. Relatively clear etymologies

33. *oinas* ‘ram’ ~ Lith. *avinas* id. (Thomsen 1869: 55 73)
34. *villa* ‘wool’ ~ Lith., Latv. *vilna* id. (Thomsen 1869: 79)

B. Dubious etymologies

32. *vuona* ‘lambkin’ ~ Baltic **ōgnas*, cf. similar words in Latin, Greek and Slavic with same meaning; not attested in Baltic (Paasonen 1917)
33. *karsta* ‘wool comb’ ~ Lith. *karšti* ‘to comb’ (Mikkola 1894: 126–27 Baltic **karšta*). An Early PFi **-ršt-* could have in fact developed to *rst* since ***rht* is impossible in Finnic. However, the suggested original Baltic derivative is not attested.

C. Erroneous etymologies

38. *jäärä* ‘buck’ ~ Lith. dial. *jėras*, Latv. *jērs* ‘lamb’ (Donner 1884: 264). The word could be < Slavic (~ Russ. *jarka* ‘lamb’) as Finnic *ää* is of late origin.
39. Est. *utt* ‘ewe; lamb’ is not < Baltic as claimed by Vaba 2011a: 753 but = Finn. *uuhi* id., with sure cognates at least in Md, Mari, and Permic (see SSA III: 379).

Group VII. Other words connected with domesticated animals

When this group is defined broadly, words denoting fodder, meadows and wetlands suitable for pasture, vegetation, and even insects living in these environments may be included. These are quite well represented among the Baltic etymologies. Some of the plants and insects named may be endemic in the Finnic area, but it would be worth studying how much their spread and conspicuousness is due to cattle breeding. It is possible that the first two words below, *pahr* and *hanhi* have initially referred to game (Group I).

A. Relatively clear etymologies

35. SEst. *pahr* ‘boar’ ~ Lith. *paršas* ‘piglet’ (Anderson 1893: 240).
36. *hanhi* ‘goose’ ~ Lith. *žąsis*, Latv. *zoss* id. (Thomsen 1869: 83).
37. *paimen* ‘herd’ ~ Lith. *piemuos* id. (Thomsen 1869: 5 33)⁷.
38. *torvi* ‘pipe, horn’ ~ Latv. *taure* ‘trumpet, horn’, Lith. *taurė* ‘bowl, glass’ (Thomsen 1890: 230–31).
39. *väive* ‘chewing louse’ ~ Lith. *vievesa* id. (Thomsen 1890: 241).
40. *kupo* ‘wisp (of hay)’ ~ Lith. Latv. *guba* ‘(hay) shock’ (Nieminen 1934: 27).
41. *suova* ‘haystack’ ~ Lith. *stovas* ‘rack, stand’, Latv. *stāvs* ‘stature; storey’ (Nuutinen 1987: 59)⁸.
42. *luhta* ‘flood meadow’ ~ Lith. *lukštas* ‘*Caltha palustris*’ (Thomsen 1890: 197).
43. *heinä* ‘hay’ ~ Lith. *šienas*, Latv. *siens* id. (Thomsen 1869: 33).
44. *korsi* ‘cane’ ~ Lith. *kartis* ‘thin rod’, *kartis* ‘mowing, raking’, *karčiai* (pl.) ‘mane’ (Koivulehto 1979a: 137–39).
45. *takiainen* ‘burdock’ Lith. *dagys* id. (Donner 1884: 268)⁹.
46. *vihvilä* ‘rush’ ~ Lith. *viksva* ‘*Carex*’ (Thomsen 1890: 242).

7. The Baltic origin has been considered certain since Thomsen. However, a cognate of the Baltic word exists also in Germanic, though only as a feminine form (Old Norse *feima* ‘bashful girl, young lass’). A masculine form **faimōn* may have existed in Proto Germanic.

8. This etymology is missing in Junttila 2011, where only an older Baltic explanation for *suova* by Kalima has been analysed and disqualified. Nuutinen’s etymology, instead, seems fully acceptable.

9. Another similar plant, the thistle, may have got its Finnic name *ohdake* as a derivative from **ohta-* < Baltic, but the original meaning of the stem has supposedly been ‘awn, husk, small fish bone’ (Lith. *ašaka*, Latv. *asaka*, Posti 1977: 268).

B. Dubious etymologies

34. *laukki* ‘white spot on a large animal’s forehead; an animal with a white spot on the forehead’ ~ Lith. *laukis*, Latv. *lauks* ‘cow, horse, etc. with a white spot’ (Donner 1884: 268). In Finnic, neither the sound structure -VVCC- nor the *i*-stems are old¹⁰.
35. *karsina* ‘pen (for animals)’ ~ Lith. *gardinas* ‘enclosure’ (Tunkelo 1928: 285–87). On the other hand, Gothic *garda* (Gen. *gardins*) ‘barrier, enclosure’ is both phonologically and semantically as close to the Finnic word.
36. *tiine* ‘pregnant (of animals)’ ~ Lith. *dieni* id. (Lõo 1911: 86). Liukkonen (1999: 144) has proposed here a PFi sound change **ei > ii*, but it is impossible to reconstruct in the first syllable of inherited words. The other possible way to combine *tiine* with Baltic **deini-* would be to suppose **ei > ii* as a substitution pattern and posit the borrowing posterior to Finnic **ti > si*, but no other such late cases have been proposed.
37. *kiiliäinen* ‘gadfly, botfly (a fly annoying livestock)’ ~ Lith. *gylys* id. (Mikkola 1906: 78). A Khanty cognate has also been proposed (Toivonen 1929: 67–68)
38. *apila* ‘clover’ ~ Lith. *dobilas*, Latv. *āboliņš*, OPr. *wobilis* ‘apple; clover’ (Thomsen 1890: 156 Baltic **obilas*). The Baltic word is originally with **d-* and its origin is unknown (Smoczyński 2007: 117).
39. *angervo* ‘Filipendula’ ~ Lith. *vingiarykštė* id. (Liukkonen 1999: 21). Liukkonen explains the omission of Baltic *v-* as being a result of dissimilation; however, this implies an unattested derivative Ba **vangarvā*.

C. Erroneous etymologies

40. Kar. *kartta* ‘manger’ ~ Lith. *prakartas* id., OPr. *pracartis* ‘trough’ (Mikkola 1894: 127 Baltic **karta*). The semantics of the Baltic word is restricted to the prefixed form (Lith. *kartas* cf. *kartis* A44) and the sound structure of the Finnic word is relatively recent (-rCC-).
41. *kyäs*, *kykäs* ‘sheaf’ ~ Lith. *kūgis* ‘cone, stack’ (Toivonen 1917b: 38). The Germanic originals (PGmc **skukka-* or **hukka-*) proposed by Koivulehto (1971b: 581–83) are phonologically much better.
42. *laukku* ‘hole; dell’ ~ Lith. *laukas* ‘field’ Latv. *lauks* id. (Saareste 1922: 144). The Germanic etymology (~ PGmc **lauka-* ‘opening’) by Koivulehto (1971a: 20–22) is both phonologically (a recent sound structure -VVCC-) and semantically more suitable.

10. Two other proposed *i*-stems of Baltic origin are adjective-like nouns describing the colours of domestic animals: *halli* ‘light grey animal’ ~ Lith. *šalnis* id. and *harmi* ‘grey animal’ ~ Lith. *širmis* id. Since all the mentioned Lith. words are Baltic deadjectival **-ij-a-* derivatives, Thomsen (1890: 117–18) suggested that the Baltic **-ij-* suffix has also been borrowed to Finnic to form names of domestic animals from adjectives (*musti* ‘black dog’ ← *musta* ‘black’). However, the similarity of the suffixes may be purely coincidental.

43. *luoma* ‘brook; dell’ ~ Lith. *loma*, Latv. *lāma* ‘depression, valley’ (Tunkelo 1928: 301–02). The intonation pattern of the Lith. and Latv. words implies a foreign origin. The Finnic word may be ← *luoda* ‘to create’.
44. *loma* ‘hole; valley’, cf. C41. (Sammallahti 1977: 124). The Finnic word has possible cognates in Saa, Md, and Mari, but the vowel of the first syllable does not correspond to Baltic **ā* (> Lith. *o*).
45. *lamu* ‘plateau, lowland, dell’, Est. *lamakas* ‘large block’ ~ Lith. *lamakas*, *lamantas* ‘block’ (SSA 2: 43). The Finnish word corresponds rather to Russ. *lom* ‘scrap, breakage; (dial.) marsh’, whereas Est. *lamakas* may be borrowed from Russ. *lomot* ‘slice’.
46. Liv. *keṛk* ‘cricket’ ~ Latv. *circenis* id. (Penttilä 1938: 495). The PFi shape of the Livonian word cannot be reconstructed without a relatively recent cluster *-rCC-.

Vaba (2011a: 753) has included here also the anatomic terms *karva* ‘hair (not of the human head)’, Est. obs. *hürn* ‘fallen hair’, *harja* ‘mane; brush’, and *sapa* ‘tail’. The semantic connection with cattle, as opposed to wild animals, is still not obvious.

Group VIII. Horses, oxen, and vehicles

A. Relatively clear etymologies

47. *juhta* ‘draft animal’ ~ Lith. *jungti* ‘to attach, join’, Latv. *jūgt* ‘to yoke, team, harness’ (Thomsen 1890: 175).
48. *härkä* ‘ox’ ~ Lith. *žirgas* ‘steed’, Latv. *zirgs* ‘horse’, OPr. *sirgis* ‘stallion’ (Thomsen 1890: 249).
49. *ratas* ‘wheel’ ~ Lith. *ratas* id. (Thomsen 1869: 73). A PGmc masc. **rapaz* id. would also be a suitable source, though only neuter forms (**rapan*) have been attested, but another Proto-Baltic word for ‘wheel’, **kelan*, has been borrowed with a different meaning (A72), which supports the Baltic origin of Finnic *ratas*.
50. *kaplas* ‘vertical support between skid and bottom of a sleigh’ ~ Lith. *kablys* ‘hook’, Latv. *kablis* ‘clasp’ (Liukkonen 1973: 25–30). The referents share a common shape.
51. *ketara* ‘kaplas (A50)’ ~ Lith. (s)*ketaras* ‘nape’ (Būga 1980: 72, Posti 1977: 265–66).
52. *kausta* ‘upper beam of a sleigh’ ~ Latv. *skausts* ‘nape’ (Posti 1970)
53. *keli* ‘road conditions’ ~ Lith. *kelias* ‘road’ (Thomsen 1869: 80).
54. *lojo* ‘kind of sleigh’ ~ Lith. *šlajos* id. (Liukkonen 1999: 86–87).

B. Dubious etymologies

40. *orhi* ‘stallion’ ~ Lith. *aržilas*, *eržilas* id. (Ojansuu 1921: 29). Another possibility is a derivation from *ora* ‘awl; penis’ (Ruoppila 1943: 38–45), but the derivational relation is not clear. The Lith. words ← PBa **aržis* ‘testicle’ (Smoczyński 2007: 24).
41. Est. *täkk* ‘stallion’ ~ Latv. *tekis* ‘ram’, Lith. *tekis*, *takis* id. (Saareste 1924a: 47). The Est. word is a *u*-stem and thus preferably of later Latv. origin.
42. Liv. *kēv* ‘mare’ ~ Lith. *kėvė* ‘nag’, Latv. *ķēve* ‘mare’ (Toivonen 1917b: 36 = Skolt Saa. *kiev*). The Liv. word is an *i*-stem and thus most probably of late Latv. origin. The Latv. word is recent as well, because of *ķ*-. No certain IE etymology.
43. *valjaat* ‘harness’ ~ OPr *walis* ‘swingle-tree’ (Sköld 1982). Sköld suggests that the swingle-tree was very essential to the new kind of harness learnt by the Baltic neighbours, which could explain the meaning shift¹¹.
44. *jutta* ‘yokeband’ ~ Latv. *jūtis* ‘joint, crossroads’ (Posti 1977: 263–64 < PBa **jutas*). No certain Baltic original.
45. *vehmaro* ‘shaft of a yoke’ ~ Lith. *vežimas* ‘carriage’ (Posti 1972). The Baltic original would have been a **-ma*-derivative **vež-ma*-.
46. *aisa* ‘wagon shaft’ ~ Baltic **aisā* ~ **aisa*, cf. similar Slavic and Old Indian words with same meaning; not attested in Baltic (Lidén 1897: 60)
47. *reki* ‘sleigh’ ~ Lith. dial. *ragės*, Latv. *ragavas*, obs. *raga* id. (Thomsen 1890: 211). The vowel in the first syllable creates some trouble that Vaba (1997c) has tried to solve.

C. Erroneous etymologies

47. *paatsa* ‘saddle cushion’ ~ OPr. *paddis* ‘harness’ Lith. *padis* ‘gantry’¹². (Thomsen 1890: 205). Finn. < Old Swed. *baza* ‘saddle blanket’ (Mikkola 1893: 388)
48. *hevonon* ‘horse’ ~ Lith. obs. *ašvienis* ‘working horse’ (Liukkonen 1999: 44–48 < Baltic **ešvāinis*). Finn. *hevonon* ← *hepo* id. ? < PGmc **exwa-* (Nikkilä 1991). Both Veps *hebo* and Liv. *ōbbi ibbi* imply a development PFi **-p-* > Finn. *-v-* and not vice versa.
49. *kavio* ‘hoof’ ~ Baltic **kapūta-*, Russ *kopyto* id. (Liukkonen 1999: 69–70) No **-t-* can be reconstructed in the PFi form (Veps *kabj*, Liv. *kābā*). The Baltic form is not attested. Finnic ? < Early PGmc. **χāfa-z* (Hahmo 1988: 118–19).

11. Liukkonen (1999: 113) combines *valjaat* with Lith. *pavalkai* ‘horse-collar’, which is semantically (see C48) as well as phonologically impossible.

12. This Baltic stem was also combined with *patja* ‘mattress; (Est. Liv.) pillow’ by Būga (1911: 243), though the correct etymology (< Gmc **badja-*) was already given by Thomsen (1869: 140).

48. *ranget* ‘horse collar’ ~ Lith. *arklio apranga* ‘harness’ (Suhonen 1989: 213). The horse collar was an East Asian innovation that spread to Europe during the 10th century AD (Needham 1986: 317–28). The Finn. word has been explained from Swed. dial. *vrang* ‘boat frame’ (Mikkola 1894: 16–17).
49. *länget* ‘horse collar’ ~ Lith. *lenké* ‘sleigh runner’ (Liukkonen 1999: 113). See C48. Finn. *länget* is most probably ← *länkä* ‘crooked, bent’ (see SSA II: 125).
50. *ohja* ‘rein’ ~ Latv. dial. *važa* id. (Ritter 1995: 196 EBa **wadžja-* or Liukkonen 1999: 100–101 Baltic **vážja*). Ritter’s explanation is phonologically invalid, whereas Liukkonen’s explanation is based on an erroneous hypothesis on the origin of Lith. *važā* (see Koivulehto 2001: 56). The Finnic word has a good Germanic etymology (~ PGerm **ansjō*, Koivulehto 1981: 168).
51. *rahje* ‘strap connecting yoke or collar with wagon shafts’ ~ Lith. *rezgis* ‘plait, basket’, Latv. *režģis* ‘grid, grating’ (Liukkonen 1999: 112–114 Baltic **razgis*). Liukkonen’s explanation of the semantics is not convincing.
52. *ies* ‘yoke’ < Baltic **ingis* ~ Lith. *engti* ‘press, oppress’ (Liukkonen 1999: 57–59). The Baltic original is merely hypothetical, the semantic distance is long and the suggested substitution pattern Baltic **-ng-* > PFi **ŋ* has no support among the Baltic borrowings of Finnic.
53. *rakentaa* ‘to harness; (Finn. also) to build’ ~ Lith. *užrakinti* ‘to shut’ (Liukkonen 1999: 113). However, the basic meaning of the Baltic verb root *rak-* is ‘to dig’ and the meaning ‘to close, cover’ of *užrakinti* is carried by the prefix *už-*.

In addition, *lava* (A70), *hihna* (A71), and Est. *sugar* may originally have been connected with vehicles.

The use of draft animals for work and transport seems to be fairly well represented in the Baltic layer of borrowings. In most of the dubious cases, comparative research into the semantic processes involving draft animal and vehicle terminology in other languages, especially in better-documented IE languages, could help in evaluating the proposed correlations.

Group IX. Waterways and water transport

A. Relatively clear etymologies

55. *järvi* ‘lake’ ~ Lith. *jaura* ‘marsh’ (Būga 1922b: 31 & a: 292–95 (Nieminen))
56. *lahti* ‘bay’ ~ Lith. *lanktis* ‘reel, swift’ (Posti 1977: 267–68)
57. *malo* ‘brow, edge; crack; bay, shore’ ~ Lith. *mala* ‘edge, shore’ Latv. *mala* id. (Loorits 1929: 175–76)

B. Dubious etymologies

48. *karvas* ‘light kind of boat’ ~ Lith. *karbas* ‘basket’, Latv. *kārba* ‘basket; kind of fishing boat’ (Thomsen 1890: 181–83). Presupposes that the Baltic words are = Latin *corbis* ‘basket’ and not < Germ. *Korb* id. < Latin. There are diverse opinions, see i.e. Orel 2003: 163 and Smoczyński 2007: 255. The Finnic word may otherwise be < Old Norse *karfi* ‘inland waterway vessel’ (see SSA I: 320).
49. *meri* ‘sea’ ~ Lith. *marios*, OPr. *mary* ‘bay, lagoon’ (Thomsen 1890: 199). As well < PGmc **mariz*. See Vaba 1997c for phonological arguments in favour of the Baltic etymology.
50. Est. *rahu* ‘reef; shelf’ ~ Latv. *graužas* ‘gravel; tidal sand pile’ (Vaba 1989: 215). The etymology would be unproblematic if there were not an equally good Germanic explanation < PGmc **hrauza-* (Tunkelo 1913–18: 24–26).
51. *ranta* ‘shore’ ~ Lith. *krantas* id. (Būga 1908: 30). More probably < Germanic, cf. Swed. *strand* id. (see SSA III: 48)
52. *liiva* ‘mud; slime; sand’ ~ Lith. *glyvas* ‘sea slime’, Latv. obs. *glīve* (Thomsen 1890: 173). Maybe < PGmc **slīwa-*, cf. Norwegian *sly* ‘slime’. SSA (II: 73–74) proposes that there are two homonymous words, *liiva*¹ ‘sand’ < Baltic, and *liiva*² ‘mud, slime’ < Germanic.
53. *lampi* ‘pond’ ~ Lith. *klampa* ‘marsh, swamp’ (Kilian 1986: 494). On the other hand, some proposed Samoyed cognates should be taken into account (see SSA II: 42).
54. *valkama* ‘haven’ ~ Lith. *vilkti*, Latv. *vilkt* ‘drag, pull’ (Nuutinen 1989: 44). Nuutinen proposed also a Slavic etymology (~ Russ. *volok* ‘portage’). A third possibility is ← *valkaa* ‘to leak, drip’, which is maintained by SSA (III: 339) to have a wide FU background.
55. *laito* ‘shallow water, grassy shore; (Est.) reef’ ~ either Lith. *šlaitas* ‘slope’ or Latv. *slaidis* ‘sloping, slender’ (Kalima 1941: 210). More probably ← *laita* (C56).
56. Est. dial. *tabas* ‘fastening pole for a boat’ ~ Lith. *stabas* ‘pillar, column’, Latv. *stabs* id., OPr. *stabis* ‘stone’ (Vaba 1997b: 178). The distribution of the Est. word is limited to one parish at the Latvian border; thus it is more convenient to interpret *tabas* as a recent Latv. loan with Latv. -s nativised to -as.

C. Erroneous etymologies

54. *laiva* ‘ship’ ~ Lith. *laivas* ‘ship’, Latv. *laiva* ‘boat’ (Donner 1884: 265) or ~ Lith. *plauti* ‘to bathe’ (Liukkonen 1999: 34 Baltic **plauja*). Lith. *laivas* < Latv. *laiva* < Finnic < PGmc **flauja-* (~ Old Norse *fley* ‘raft, ship’, Koivulehto 1970), since the Germanic original is fully documented, unlike its Baltic cognate suggested by Liukkonen.

55. *purje* ‘sail’ ~ Lith. *burė*, Latv. *burā* id. (Thomsen 1890: 124 163–64 Baltic **burjė*). Finnic < Germanic **burja-* (~ Old Norse *byrr* ‘tailwind’, Koivulehto 1970: 182). Most probably the Baltic words are also < Germanic.
56. *laita* ‘(ship) board’ ~ Latv. *laide* ‘butt, stock’, Lith. *nuolaida* ‘allowance’ (Thomsen 1890: 193). No semantic connection. A homonymous Latv. word has a more specific meaning connected to boat building, but it is certainly not a borrowing from Finnic (Kalima 1936: 128).
57. *lautta* ‘float, ferry’ ~ Lith. *plaustas* ‘float, raft’ (Liukkonen 1999: 34). Liukkonen suggested a borrowing before the change **d-d > *zd*, which, however, had already started in PIE (Meyer-Brügger 2010: 268).

Group X. Textiles and weaving, clothing and shoes.

A. Relatively clear etymologies

58. *niisi* ‘heddle’ ~ Lith. *nytis*, Latv. *nītis* pl. id. (Weske 1890: 215).
59. *vuota* ‘pelt, hide’ ~ Lith. *oda* ‘bark, leather’, Latv. *āda* ‘skin, fell’ (Thomsen 1890: 205).
60. *kypärä* ‘helmet; (Est.) hat’ ~ Lith. *kepurė*, Latv. *cepure* ‘hat’ (Thomsen 1890: 185).
61. *kinnas* ‘glove’ ~ Latv. *cimds* id. (Lule Saa *kamtes* < Finnic < Baltic **kimdas*, Thomsen 1890: 187).
62. *kurpponen* ‘winter shoe’ ~ Lith. *kurpė*, Latv. *kurpe* ‘shoe’ (Donner 1884: 269). The Finn. *-rpp-* is the result of a secondary lengthened < *-rp-*, attested in dialects.

B. Dubious etymologies

57. Liv. *vērbikšō*, Veps. *bārbitada* ‘to spin’ ~ Lith. *verpti*, Latv. *vērpt* id. (Thomsen 1890: 141 240 Liv., Posti 1946: 386 Veps). In any case, this is not the earliest word for spinning in Finnic, since *kehrätä*, a Finnic–Saamic–Mordvinic verb, is of Aryan origin (Koivulehto 1979b)
58. *verho* ‘curtain, cloth, Est. *võru* ‘ring, hoop, bond’ ~ Lith. *veržti* ‘to screw, tighten, tie together’ (Baltic **verža*, Thomsen 1890: 241). It is questionable whether there is any connection between the Finn. and Est. word. An appropriate Baltic derivative is missing.

C. Erroneous etymologies

58. Liv. *kōidaz* ‘weaver’s reed’ ~ Lith. *skietas*, Latv. *šķiets* id. (Thomsen 1890: 141). Cf. C33.
59. *mytyri* ‘kind of headwear’ ~ Lith. *muturas* ‘kind of headscarf’ (Toivonen 1917a: 87). This obsolete Finn. word is an *i*-stem without any Finnic cognates, and thus a recent loan from Scandinavian (~ Old Norse *mitr* ‘miter’, Toivonen 1917a: 87).
60. Est. *kulit* ‘pocket’ ~ Latv. *kule* ‘bag, sack’, Lith. dial. *kulis* ‘testicle, bag’ (Saareste 1922: 141). The Est. word is a recent borrowing from a Latv. diminutive *kulīte*, since Latv. *kule* < Russ. *kul'* (Endzelīns 1925–27: 306).
61. Est. *kaugas* ‘pocket’ ~ Latv. *kabata* id. (Uibo 2010: 758–59). Implies very improbable, complex phonological processes
62. *nartsu* ‘rag’ ~ OPr. *northe*, *nurtue* ‘shirt’ (Vaba 1998: 178–80). A recent word, as revealed by the consonant cluster *-rts-*.
63. Est. *vanik* ‘wreath, garland’ ~ Lith. *vainikas* ‘crown, wreath’ (Thomsen 1890: 235). The first syllable vowels do not correspond; a Slavic origin (Polish *wianek* ‘crown’) could be possible, possibly mediated by Baltic Germanic?

Vaba (2011a: 757) seems to suppose that Finnic *kelta* ‘Diphasiastrum complanatum, some other yellow plants; yellow colour’ has been borrowed from Baltic as a name for the above-mentioned plant, traditionally used for the dyeing of fabrics, and that the name of the colour has been derived from it. This is not in any way granted, since only Latv. *dzelta* has the dialectal meaning of ‘Diphasiastrum complanatum’, whereas Lith. *gelta* is simply ‘yellow colour’. Thus no innovation has to be combined with the borrowing.

Group XI. Construction

A. Relatively clear etymologies

63. *lauta* ‘board’ ~ Lith. *plautas* ‘kind of table’, Latv. *plauts*, *plaukts* ‘shelf’ (Thomsen 1890: 209)
64. *malka* ‘roof batten’ ~ Lith., Latv. *malka* ‘firewood, splinter’, OPr *malko* ‘wood’ (Donner 1884: 267)
65. *seinä* ‘wall’ ~ Lith., Latv. *siena* ‘wall; border’ (Thomsen 1869: 34)
66. *uksi* ‘door’ ~ Lith. *uoksas* ‘hollow’ (Koivulehto 1993: 34)
67. *sakara* ‘cusp, lobe; hinge’ ~ Lith. *stagaras* ‘dried up plant stem or branch’, cf. Serbian *stožer* ‘hinge’ (Kalima 1936: 203).
68. *huone* ‘room, building’ ~ Lith. *šonas* ‘cheek; side’, Latv. *sāns* ‘side’ (Koivulehto 1992: 169–75). The original Finnic meaning should be ‘annexe’.
69. *silta* ‘bridge; floor’ ~ Lith. *tiltas*, Latv. *tilts* ‘bridge’ (Budenz 1873: 98)
70. *lava* ‘stage, platform’ ~ Lith. *lova*, Latv. *lāva* ‘plank bed’ (Wiklund 1896: 45–46)

B. Dubious etymologies

59. *hirsi* ‘log, building timber; (Est.) pole, perch, rail’ ~ Lith. obs. *žardis* ‘long pole’ (Nieminen 1945: 531–33 Baltic **žirdis*). A Baltic apophonic variant with **ir* required for the etymology is not attested. Another possibility is a very old Slavic loan (~ PSI **žr̥db̥*, cf. Russ. *žerd’* ‘pole’), and it is not excluded that also Lith. obs. *žardis* is a borrowing from the same stem (preferably from Belarusian, see Nieminen 1949: 110).
60. *sii* ‘eaves beam’ ~ Lith., Latv. *sija* ‘bar, beam’ (Nieminen 1963 Baltic (Curonian) **sije*). The Finnic word has also been proposed cognates in Saa, Permic, and Samoyed (see SSA III: 175).
61. *sammas* ‘column, pole, cairn’ ~ Lith. *stambas* ‘plant stem’, cf. Sanskrit *stambah* ‘column, pole’ (Büga 1908: 27–28). Kalima (1930) explains the Finnic word from Aryan.
62. *talas* ‘boathouse; (Est.) scaffolding’ ~ OPr. *talus* ‘floor’, Lith. *patalas* ‘(made up) bed’ if not < PGmc **stallaz* (Hofstra 1985: 102) or = PPermic **tulys* (~ Udmurt *tylys* ‘hut, tent’) < PAryan **tala-* (Joki 1973: 324–25).
63. Est. *keris* ‘pile of stones in top of an oven or sauna stove’ ~ Latv. pl. *ceri*, *ceras* ‘oven stones’ (Vaba 1996a). It is hard to decide the direction of borrowing, since both the Latv. and Est. words have possible cognates (Latv. *ceri* ~ *cerēt* ‘to hope’ and Est. *keris* ~ Komi *gor* ‘oven’). A later loan Latv. > Est. is also possible, since *keris* has a recent stem form *-ise-* and the initial *k-* may be due to etymological nativisation.
64. *sarana* ‘hinge’ ~ Lith. *sqnarys* ‘joint’ (Liukkonen 1999: 127–28). Finnic *sarana* has also been connected to some Permic and Ugric words (see SSA III: 158).

C. Erroneous etymologies

64. Est. dial. *karts*, *kartsas* ‘ladder’ ~ Lith. pl. *gardys* id. (Nieminen 1959: 209). Certainly a later loan < Latv. dial. *kārde* id. because of the cluster *-rts-*.
65. *aitta* ‘granary’ ~ PBa **aitā*, a form reconstructed by Lidén (1911: 198–202) based on Slavic forms like Polish *jata* ‘granary’. Lidén analysed Lith. *ait-varas* ‘kite; evil spirit’ as **ait-varas* ‘granary-guard’, but it can also be interpreted ← **ati-varyti* ‘to chase away’ (Smoczyński 2007: 5); thus, there is no undisputed Baltic evidence of **aitā*. The Finnic word has a relatively recent sound structure *-VVCC-*.
66. *aita* ‘fence’ ~ Lith. *eiti* ‘to go’ (Liukkonen 1999: 20–21 PBa **aitā*). The Baltic derivative is hypothetical and the semantic distance is long. Finnic ? < PGmc **aiđa-* ‘strait’ (LÄGLOS I: 17–18) if not = Khanty DN *o’t* ‘type of fish weir’, as proposed by Janne Saarikivi in a private message.
67. *pirtti* ‘cottage; sauna; kitchen’ ~ Lith. *pirtis*, Latv. *pirts* ‘sauna’. (Thomsen 1869: 83). Finnic < Slavic, cf. Old Russ. *pъrtь* ‘bathhouse’ (Nieminen 1953) because of the sound structure *-rCC-* and the distribution of the word: in Southern Finnic, it occurs only as a Finn. loan in Est. *pirt* ‘*Dianthus deltoides*’, but the Russ. word has been borrowed even in Mari and Chuvash.

68. *hulas* ‘timber joint, round edge over hollow point, shelter in front of a building’ ~ Lith. *šulas* ‘pillar; beam; building timber’ (Nuutinen 1984). Smoczyński (2007: 651) explains the Lith. word as a loan from Polish *szulo* ‘wooden pole’ and the Germanic etymology for Finnic *hulas* (PGmc **hulaz* ‘hollow’, Toivonen 1944) seems acceptable.

Apart from A63–64 and B59–62, several different names for laths, slats, sticks and poles could be included to this group: *aarto*, *?hako*, *?hara*, *kärväs*, *?maila*, *orsi*, *?pahla*, *?parsi*, *seiväs*, *?vanko*, *?varras*, *?varsi*, *?varsta*, Est. *?matar*, *sugar*, *tuber*, and *?tõlv*. However, they are extremely difficult to combine with a certain technological level due to their versatility and the simple design of the items denoted.

Vaba (2011a: 754) has amplified the semantic group of building and technology by some words originally denoting something not belonging here. The original meaning of *kohta* ‘place, spot’ must be ‘front’ to be combinable with Lith. *kakta* ‘forehead’, Latv. *kakts* ‘nook’ (Uotila 1985). *Rako* ‘slit, gap’ (~ Lith., Latv. *spraga* id., Thomsen 1890: 219) and *vaaja* (B68) do not have to be borrowed as construction words, and *riitta* ‘pile, stack (of wood)’ is neither a construction word nor a Baltic borrowing.

Group XII. Other

A. Relatively clear etymologies

71. *hihna* ‘belt, strap’ ~ Lith. *šikšna*, Latv. *siksna* ‘leather’ (Donner 1884: 266 = Md *kšna* id.)
72. *kela* ‘reel, spool’ ~ OPr. *kelan* ‘wheel’ (Thomsen 1890: 185)
73. *kirves* ‘axe’ ~ Lith. *kirvis* id. (Thomsen 1869: 80)
74. *lapio* ‘shovel’ ~ Lith. *lopeta*, OPr. *lopta* id. (Donner 1884: 266)
75. *luuta* ‘broom’ ~ Lith. *šluota*, Latv. *slota* ‘broom’ (Donner 1884: 266)
76. *kauha* ‘ladle’ ~ Lith. *kaušas*, Latv. *kauss* ‘basket, bucket, scoop’ (Donner 1884: 264)
77. *kannel* ‘kind of harp’ ~ Lith. *kanklės*, Latv. *kokle* id. (Thomsen 1890: 178–81)
78. SEst. *välmäs*, *välm* ‘hank’ ~ Lith. *velti* ‘to felt, full, tousle, ruffle’, Latv. *velt* ‘to roll’ (Vaba 1994: 245 < Baltic **velma-*).

B. Dubious etymologies

65. *kampi* ‘crank’ ~ Lith. *kampas* ‘angle, corner’ (Leskien 1891: 214). Another possibility is < Germanic **hamfaz* (~ Goth. *hamfs* ‘mutilated, maimed’, Toivonen 1917b: 12–17). An earlier suggestion ~ Lith. *gembė* ‘bracket, holder’ (Donner 1884: 269) is not correct.

66. *lasta* ‘spatula, shake; (Est.) bar connecting wagon axles’ ~ Lith. *lazda* ‘stick; hazel’, Latv. *lagzda*, Opr. *laxde* ‘hazel’. As a highly durable and elastic material, hazel wood has been used to make several utensils; the semantic connection is still somewhat unclear.
67. *pauna* ‘bag’ ~ Latv. *pauna* ‘bundle, pack’ (Kalima 1936: 146). The IE etymologies proposed for Latv. *pauna* (see Kiparsky 1959: 424) are not semantically satisfactory. Thus the direction of borrowing is unknown. Since the Finn. word is most probably < Est., a recent borrowing from Latv. is also possible.
68. *vaaja* ‘wedge’ ~ Lith. *vagis*, Latv. *vadzis* ‘crook, hook’ (Thomsen 1869: 156). It is impossible to decide, whether the Finnic word is from Baltic or Germanic, since the PGmc form **wayjaz* is almost identical to PBA **vagjas*.
69. *talpa* ‘wedge, cleat’ ~ C6 (Koponen 1998: 182). Since Finn. *talpa* < Est. *talb* id., the Est. word could be < Latv. Semantically, the Lith. and Opr. forms may be closer to Finnic.
70. Kar. *ola* ‘silicon’ ~ Lith. *uola* ‘cliff, rock’, Latv. *ola* ‘egg, round stone’ (Toivonen 1952: 30–31 = Mord. *al* < Baltic). Another possibility is < PArayan **ola-* ‘ball, round stone’ (see SSA II 262–63).
71. *rauta* ‘iron’ ~ Lith. *rauda* ‘ruddiness, red colour’ (Wiklund 1896: 142–43). The older and better-known etymology ~ PGmc **raudā-* ‘red’ (Thomsen 1869: 143) is as well justified.
72. *karta* ‘sheet metal’ ~ Lith. *skarda*, Latv. *skārds* ‘tin plate’ (Donner 1884: 265). This etymology would be of great historical interest if it were the only sure Baltic loanword witnessing a use of metal, since *viikate* (B22) and *rauta* (B71) are considered dubious. However, *karta* could be alternatively combined to Germanic **skarda-*: cf. Old Frisian *skerd* ‘section, piece’ ← Germanic **skeranan* ‘to cut’. Even the Baltic words may be < Germanic, if they are not derivable from the same IE stem (Lith. *skirti* ‘to cut’).
73. SEst. *kuvvas* : *kuuda* ‘axe shaft’ ~ Lith. *kotas* ‘stem; handle, shaft’, Latv. *kāts* id. (Thomsen 1890: 190). Nieminen (1959: 202) links the first syllable **ū* to a recent Latgalian origin, but it is unclear if there is any Latgalian influence on SEst.
74. *suola* ‘salt’ ~ Latv. *sāls* id. (Būga 1980: 131 Baltic **sālā*). In principle, the Finnic word may be older and related to Md and Permic words (Erzyan *sal*, Komi *sol*, etc.), but this necessitates an irregular sound correspondence (see SSA III: 215); i.e. the Baltic explanation is phonologically the most suitable.
75. *terva* ‘tar’ ~ Lith. *derva*, Latv. *darva* id. (Thomsen 1869: 152 = Saa *tarve*). Again, the Baltic stem has a PGmc cognate **terwō-* as an equally good source for the Finnic word.
76. SEst. *täüdäs* ‘(birch) tar’ ~ Lith. *degutas*, Latv. *deguts* ‘tar’ (Ojansuu 1921: 38 Pre-Latv. **degutas*). The absence of **-g-* in the SEst. word is somewhat hard to explain.

C. Erroneous etymologies

69. *latu* ‘ski track’ ~ Lith. *latakas* ‘duct, passage’ (Sammallahti 1977: 124 = Mari *ladə*). The Lith. word is a loan from Belarusian, see Smoczyński 2007: 338.
70. *turku* ‘market’ ~ Lith. *turgus* id. (Thomsen 1869: 88.) Finnic < Slavic *tъrgъ* (Thomsen 1890: 127).
71. *rahko* ‘splinter holder’ ~ Lith. *raška* ‘apple picking stick’ (Liukkonen 1999: 114). The original meaning of the Finnic word is evidently ‘forked’ (Nilsson 2001: 185).
72. SEst. *palask* ‘worn out thing’ ~ Lith. *peilis* ‘knife’ (Vaba 1988: 183). The words do not match phonetically or semantically.
73. *suka* ‘currycomb’ ~ Lith. *šukos* ‘comb’ (Thomsen 1890: 226) is a possible combination (Kallio 2009: 32) but the borrowing must be earlier than Baltic (i.e. Pre-Baltic, Proto-Balto-Slavic or Western Indo-European) because of the Finnic *s-*.

There are two words distributed in Northern Finnic variants which have a proposed Baltic origin, but their phonology makes it impossible to situate them in the ancient loanword layer: Finn. *puusniekka* ‘husband living in wife’s parents’ household; stepfather’ (Büga 1980: 22 ~ Lith. *pusininkas*, Latv. *pusenieks* ‘co-owner of land’) and Kar. *tšiitalo* ‘leftover animal fat’ (Kalima 1941: 209 < Pre-Latv., cf. Latv. *cīkstalas* id.). These could be connected with stems such as *kirstu* ‘coffin’ and *kousa* ‘large drinking cup’, which originate from Baltic languages but have spread through the region through mediation by Russ., Germ., or Swed.

Conclusion

To sum up, the context of the old Baltic contacts remains one of the key questions with regard to the prehistory of not only Finnic and Baltic, Saami and Mordvinic, but also Northern Indo-European as a whole. The key issue when studying the context is, in turn, the semantics of the loanwords, a matter still involving many open questions. A great part of the etymologies have not been critically evaluated yet, and a conclusive research on their context in the history of innovations should be performed as a co-operative endeavour involving all disciplines studying prehistory.

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