

Luobbal Sámmol Sámmol Ánte (Ante Aikio)

Giellagas Institute
University of Oulu

An essay on Saami ethnolinguistic prehistory*

*“Sámiid boahtimušas ii leat gullon,
ahte livččo boahtán gosge.”
– Johan Turi*

This essay deals with the study of the ethnolinguistic past of the Saami. In recent years many novel findings have emerged in the field of Saami historical linguistics, and the interpretation of these new results allows a coherent timeline of the development of the Saami languages to be established. The Proto-Saami language appears to have first evolved somewhere in the Lakeland of southern Finland and Karelia in the Early Iron Age. A broad body of evidence points to the conclusion that the Middle Iron Age (ca. 300–800 AD) in Lapland has been a period of radical ethnic, social, and linguistic change: in this period the Proto-Saami language spread to the area from the south and Saami ethnicities formed. Prior to this, Lapland was inhabited by people of unknown ethnicity that spoke non-Uralic languages, many relics of which survive in Saami vocabulary and place-names. In the archaeological record of Lapland the Middle Iron Age is an obscure period characterized by sparse finds and lack of ceramics and iron production. This apparent correlation between ‘archaeological invisibility’ and major ethnolinguistic change poses intriguing questions regarding the nature of this period of Saami prehistory.

1. Introduction

Since the very beginning of scientific study of the history of the Saami, scholars have wondered about our “origin” – whence we came and why we speak Finno-Ugric languages related to Finnish and Hungarian. Initially the question of our origins was approached from two very different angles. On the one hand, comparative linguists turned to seek these origins from beyond the Volga or the Urals, as the linguistic relationship of Saami languages to Finno-Ugric was solidly demonstrated in the 18th century already. On the other hand, cultural and physical anthropologists started early on to emphasize the difference of our ethos and race from those of neighboring peoples, including the linguistically

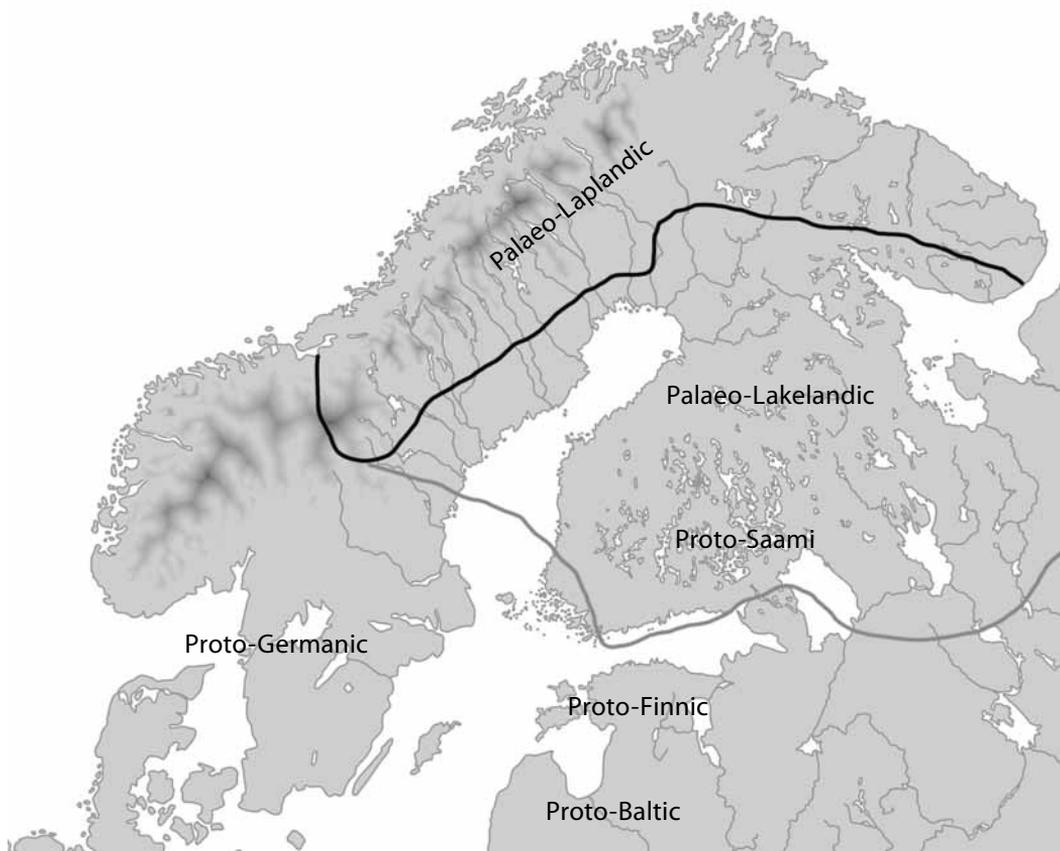


Figure 1. The linguistic situation in Lapland and the northern Baltic Sea Area in the Early Iron Age prior to the expansion of Saami languages; the locations of the language groups are schematic. The black line indicates the distribution of Saami languages in the 19th century, and the gray line their approximate maximal distribution before the expansion of Finnic.

related Finns. As such speculations combined with social Darwinist ideologies, it emerged as a mystery to be pondered by many scholars how we could be linguistically related to sedentary Finno-Ugric peoples that had evolved to a higher cultural level, even though our racial characteristics suggested a very different history – or perhaps a lack of history altogether.

The naïveté of such thoughts is now easy to point out. What is less easy to see, though, is how the legacy of old paradigms now manifests itself in new forms in today's theories. The clash between linguistic and anthropological findings of Saami origins has not disappeared, even though methods of population genetics have been substituted for craniometric measurements. While linguists trace Saami origins via the Finno-Ugric connection far to the Russian taiga, archaeologists find evidence of cultural continuity in Lapland since the pioneers who followed the receding ice sheet, and geneticists describe the Saami population as an 'outlier' in the European context. A synthetic view of Saami ethnogenesis seems perhaps farther from our reach than ever, as there is hardly a single question in the field of Saami prehistory on which broad agreement between

scholars in the various disciplines could be found. Perhaps nowhere can this be seen better than in the fact that there is no unanimity of what the term ‘Saami’ even means when applied in a prehistoric context. This essay is an attempt to present a synthetic view in a fragmented field of study by piecing together a picture of what we currently do know and what we still do not know of the origin of Saami ethnicities.

Comparative linguistics provides effective methods for tracing the origins of languages, and due to the ethnolinguistic connection linguists have often dominated discussions on ethnic prehistory. Indeed, it cannot be denied that language is an important component of ethnic identity – it is, in fact, a component so central that ethnic boundaries largely coincide with linguistic ones. There are, of course, also many exceptions to this basic correlation, such as cases where two groups of people do not share a common ethnic identity in spite of speaking essentially the same language (as in the case of the Serbs and the Croats in modern Europe, for example). However, such cases are recognized as exceptional precisely because they go against the seemingly common rule that speakers of one language tend to consider themselves as members of one group, and those that speak another members of a different group.

The fact that a pervasive connection between language and ethnicity can be synchronically observed in the real world has given rise to an idea that this connection is also diachronically straightforward. It seems to be an unstated premise that lurks on the background of many linguists’ thinking that the origin of a language also coincides with the ethnogenesis of its speakers. This has also been the case with my own writings on the topic, such as Aikio (2006), where the ethnically loaded term ‘Saami homeland’ is used in a purely linguistic sense, in reference to ‘the original speaking area of Proto-Saami’. This way of thinking must be rejected as misleading, however.

It is, in fact, quite easy to see that ethnogenesis is not a direct result of the formation of new languages through the breaking up of a proto-language. For example, an ethnic category such as ‘Swedes’ has not emerged through the separation of a ‘Swedish’ language from Proto-Scandinavian. On the contrary, the mere idea of such a distinct ‘language’ has served as a background upon which the idea of an ethnic group could be created. But language does not need to determine the boundaries of an ethnic group even if it determines its prototype. By the linguistic criteria of shared innovations or mutual intelligibility one cannot find anything that would delimit all dialects of ‘Swedish’ as a coherent whole distinct from ‘Norwegian’ and ‘Danish’. On the other hand, there are Scandinavian language varieties spoken within Sweden such as Övdalian, which by the criterion of lack of mutual intelligibility as well as by their speakers’ own opinion are clearly distinct languages (although refused to be officially recognized as such by the state of Sweden). Still, speakers of Övdalian consider themselves ‘Swedes’ and not a distinct ethnic group (Melerska 2010). Moreover, even groups speaking linguistically unrelated languages, such as Meänkieli or Torne Valley Finnish in northern Sweden, have become secondarily incorporated to the ethnic category of ‘Swedes’.

Hence, even if ‘ethnic identity’ is a category intimately tied to the concept of ‘native language’, ethnogenesis often cannot be explained as a direct result of glottogenesis – in part because there are many answers to how one should define ‘native language’ on an individual level (Skutnabb-Kangas 2000: 105–115) and to what counts as a ‘language’ on a group level. On the other hand, one should not go as far as to reject linguistic explanations of ethnogenesis altogether. While linguists have often oversimplified the connections of language and ethnicity, in other subfields of the humanities the situation is more the opposite – in cultural studies ethnicity has remained a highly controversial topic subject to much critical discussion and overproblematization, and the role of native language as a criterion of ethnic identity has often been overlooked in this discourse.

A popular view expressed by Barth (1969), for instance, is that ethnicity is a construct created or chosen to uphold a group’s difference from its neighbors. In the context of Saami prehistory Barth’s views have led scholars such as Odner (1983) and Hansen and Olsen (2004) to see the Saami ethnogenesis as a process of gradual unification, which could be explained as a reaction to the political, economic, and cultural pressure caused by intensified interaction with Scandinavians in the Iron Age. While there is certainly a grain of truth to such a scenario, the theory still reminds one of a three-legged stool missing a leg. As languages are born through a process of linguistic diversification, no completely new language could ever have been ‘created’ as an ethnic marker in response to outside pressure. Even if the envisioned process of ethnic unification has taken place in Lapland – and it well may have – we still need a wholly different explanation to how the Proto-Saami language became adopted as a key component of the emergent ‘Saami’ identities.

The intimate connection between language and ethnicity implies several things for the interpretation of Saami prehistory. It is worth bearing in mind that the term ‘Saami’ can be reasonably applied only to societies thought to have used some form of Saami as their main medium of in-group communication. Because of this, it is sensible to speak of ‘Saami people’ and ‘Saami culture’ only in connection with periods when Saami languages have existed, but not before that. Even so, it must also be borne in mind that ‘Saami’ in this sense is merely a linguistic umbrella term, and we must seriously consider the possibility that in prehistoric times Saami languages have been spoken in communities that differed radically from the historical Saami in terms of their culture, livelihoods, or ethnic identity.

While all this might seem easy to fathom, in practice one gets to learn that it is not. For instance, it is not at all uncommon to see Stone Age dwelling sites or rock art in Lapland characterized as “Saami” in scholarly references and popular texts alike. Even so, those acquainted with very basic facts of the historical development of languages are aware that the Saami languages – or indeed, any languages spoken today – cannot possibly have existed in the Stone Age. Consequently, there can have been no ‘Saami’ in the Stone Age either; people who did not speak Saami and did not call themselves Saami should not be called Saami by us either. It is another thing that the Saami, like all peoples, have their Stone Age linguistic, cultural, and genetic ancestors. Thus, the right question to ask is

how Saami ethnicities later emerged through the interplay of diverse linguistic, cultural, and genetic components. In the present state of research the details of this process are largely unknown.

While our current knowledge will hardly translate into an exact theory of Saami ethnogenesis, it is a task in itself to try to create a synthesis of what we know and to formulate the questions we should ask ourselves next. The last decade has produced many new results and interpretations in the field of Saami historical linguistics, and a rather uniform view of the chronology and areal contacts of the proto-stages of Saami languages has emerged among linguists (Aikio 2006; Kallio 2009; Häkkinen 2010a, 2010b; Saarikivi 2011; Heikkilä 2011). These new linguistic views are of interest to scholars in all fields of Saami prehistory, as they allow us to place sociolinguistic events of the past in space and time, and thus to partially reconstruct the sequence of major ‘speech community events’ (in the sense of Ross 1997) which led from the Uralic proto-language to the emergence of Saami languages in Lapland.

Somewhere along this timeline of linguistic development Saami ethnicities have taken shape in the groups speaking these languages. The setting up of a linguistic chronology for Saami will thus also allow us to determine the boundaries between possible and impossible theories of Saami ethnogenesis. It would seem a reasonable requirement for such a theory that it must address the question why the Saami people speak Saami languages, as even the name ‘Saami’ as a label for an ethnic category is tied to the very existence of the languages themselves. I shall discuss below results achieved on various questions in Saami historical linguistics, focusing largely on loanword strata of varying age, which bear witness to the prehistoric interactions of groups speaking different languages. An attempt for a synthesis of these results will prompt us with new and surprising questions about past ethnicities in Lapland.

2. The position of Saami in the Uralic language family

The Saami languages, occupying the extreme northwestern parts of continental Europe, are a geographically peripheral branch in the Uralic family of languages. Whatever theory of Uralic *Urheimat* one might choose to endorse, it is quite obvious that the original speaking area of the Uralic proto-language must have been located far from Lapland, and certainly such an outlying area must have become Uralicized only in the last phase of the sequence of linguistic expansions that have formed the language family in the first place. It is, at any rate, clear that the first people to colonize Lapland after the last Ice Age were not speakers of Uralic languages, as the whole language family is hardly much older than approximately 4000 years (an up-to-date discussion on the dating of Proto-Uralic is provided by Kallio 2006).

Saami has a special relationship with Finnic, the only branch of the family known to have been in contact with Saami. In the traditional framework of Uralic taxonomy this special relationship has been understood in a genetic sense: Saami and Finnic languages would constitute a ‘Finno-Saamic’ subgroup in the

family, and thus derive from an intermediate Finno-Saamic proto-language (which in older research has been misleadingly called ‘Early Proto-Finnic’). Even so, it has always been clear that the main bulk of features shared by Saami and Finnic are due to language contact rather than genetic inheritance. This is certainly true of many morphosyntactic isomorphisms, and also loanwords have been adopted from Finnic to Saami in huge numbers. Some scholars, notably T. Itkonen (1997), have pursued the idea that all the features common to Finnic and Saami and separating them from the rest of the Uralic family could be explained in this way. Itkonen’s conclusions have been criticized by Sammallahti (1999: 72–74), who points out that there is more vocabulary common to Finnic and Saami than Itkonen acknowledges, and also draws attention to specifically Finno-Saamic cognate grammatical endings such as the mood markers *-ŋši- and *-kši- and the infinitive ending *-tak.

How one should evaluate the arguments for and against a Finno-Saamic genetic subgrouping depends on what kinds of probative power one assigns to the various levels of language in taxonomical questions. As regards shared vocabulary items, it is difficult to see the evidence for Proto-Finno-Saamic as compelling; in methodological discussions it has been pointed out that shared vocabulary as such is a weak criterion for subgrouping, as lexical innovations can easily spread between dialects and languages already separated (e.g., Fox 1995: 220). In the case of Saami and Finnic the use of lexical evidence is further complicated by the existence of ‘etymological nativization’, a process whereby speakers bilingual in two related languages identify patterns of regular sound correspondence and then apply these productively by nativizing loanwords in shapes that accord with the sound correspondences attested in cognate vocabulary. Such processes have been very productive in the loanwords transferred between Finnic and Saami, and they have often made even recent borrowings deceptively look like cognate items from a phonological point of view (Aikio 2007a).

Keeping this in mind, one must treat with some doubt claims such as that Saami and Finnic may share as many as 220 cognate words not attested elsewhere in the Uralic family (Sammallahti 1999: 74), as many or even most of such word-roots may simply be undetected borrowings between the already differentiated language branches. On the other hand, T. Itkonen’s (1997) attempt to undermine the validity of the ‘Finno-Saamic’ subgrouping on the basis of calculations of the numbers of lexical cognates must be treated with the same doubt, as he, too, seems to overestimate the probative force of lexical correspondences in genetic subgrouping.

In the domain of morphology a few specifically Finno-Saamic cognate morphemes are well established. It is problematic, though, that their further origin remains unknown and none of them can be unambiguously shown to have arisen as a result of some specific innovation; it is possible that they were simply inherited from an earlier proto-language stage and their cognates in more eastern Uralic languages either were lost or remain unidentified. Phonology is the domain where more precise methods for detecting innovations could be applied,

but interestingly, it has proved very difficult to find decisive evidence of sound changes common to Saami and Finnic.

The most plausible candidate for such a change is the development of a labial vowel in unstressed syllables via a change $*Vw > *oj$ (Sammallahti 1999: 72–73). But as recently shown by Kuokkala (2012), closer inspection reveals the correspondences between Saami and Finnic unstressed labial vowels as highly diverse, which suggests more complicated paths of development. As proposed by E. Itkonen (1954) already, the Proto-Uralic sequences $*-aw-$ and $*-iw-$ seem to have developed differently in Finnic (as in Fi *kanto* ‘tree stump’ < Proto-Uralic $*k\ddot{a}ntaw$ vs. Fi *käly* < Proto-Uralic $*k\ddot{a}liw$), whereas Saami shows no such distinction. If the unstressed labial vowels really are a common innovation instead of a parallel development, then two such vowels ($*o$ and $*u/*\ddot{u}$) need to be reconstructed in Proto-Finno-Saamic, which later merged in Saami (see also Kallio, forthcoming). Another problem is that Saami shows a distinction between an unstressed labial vowel (Proto-Saami $*-\ddot{o} \sim *-\ddot{u}$) and an unstressed sequence of a labial vowel followed by a palatal glide (Proto-Saami $*-\ddot{o}j \sim *-\ddot{u}j\ddot{e}$), both of which have the same correspondents in Finnic. How this is to be accounted for in terms of phonological reconstruction is not clear; the history of unstressed labial vowels requires further study.

The question whether Finno-Saamic is a valid genetic subgroup remains so far unsolved, and perhaps insoluble. The taxonomic issue is further complicated by the fact that also other Uralic languages have been spoken in the immediate vicinity of Finnic and Saami, but these became extinct during the expansion of East Slavic. Rahkonen (2011a) has convincingly argued on the basis of toponymic studies that the Uralic language spoken by the ‘Chudes’ in areas surrounding the city of Novgorod was neither Finnic nor Saami. In the Early Middle Ages there still was an unbroken continuum of Uralic languages spoken by the historical Chude, Merya, Muroma and Meshchera tribes that linked Finnic and Saami to Mordvin. We know nearly nothing of the concrete features of these extinct languages, but there are speculative theories such as Rahkonen’s (2009) attempt to link the Meshchera language in the Oka River basin with Permic on the basis of certain resemblances in place-names.

Questions regarding the taxonomic position of Finnic and Saami are obviously very difficult to answer as long as we lack knowledge of the features of the extinct Uralic languages once spoken in their vicinity. Nevertheless, due to the very limited number of possible common Finno-Saamic innovations it seems clear that if such an intermediate proto-language really existed, it must have been merely a short transitory period before the separation of Pre-Proto-Finnic and Pre-Proto-Saami into distinct speech communities. On the whole, though, the taxonomic validity of Finno-Saamic is perhaps not a question of central importance to the reconstruction of Saami linguistic prehistory; it is in any case clear that Finnic and Saami split off from a common parent language regardless of whether this proto-language was ‘Finno-Saamic’ or some more inclusive branching from which also some other West Uralic languages have diverged. On the other hand, it is equally clear that Pre-Proto-Finnic and Pre-Proto-Saami

have developed in close geographic proximity, as otherwise they could not show the signs of prolonged language contact on all levels of language. Thus, while Finno-Saamic might not be a valid genetic grouping, it still is a valid areal grouping – in Helimski’s (1982) terms an ‘areal-genetic unit’, i.e. a linguistic subgroup which has only limited evidence of status as genetic node but shows signs of extensive areal interaction. The status of Finno-Saamic as an areal-genetic unit is a fact that must have a specific historical explanation.

3. The areal context of Pre-Proto-Saami

Even though we do not know exactly how Pre-Proto-Saami separated from other early western Uralic languages, we can try to reconstruct its areal context soon after its emergence. Once Pre-Proto-Saami had become established as a distinct dialect or language spoken in its own speech community, its speakers have been in contact with neighboring groups speaking both genetically related and unrelated languages, and traces of these contacts can be recovered by the comparative method and etymological analysis.

Before we can review the evidence of interaction between Pre-Proto-Saami and other contemporaneous language forms, the term itself needs clarification. The path of linguistic innovations that led from Proto-Uralic to Proto-Saami consists of many subsequent periods of language change. The most conspicuous of these periods of change involved a complete reorganization of the Uralic vowel system, which serves as a useful criterion for differentiating a Proto-Saami stage of linguistic development from a Pre-Proto-Saami one.

West Uralic	Pre-Proto-Saami	Proto-Saami
i ü u	i u	ie i u uo
e o	e o	ea ë o oa
ä a	ä a	ā

Table 1. West Uralic, Pre-Proto-Saami, and Proto-Saami vowel systems.¹

As seen in Table 1, Pre-Proto-Saami had a conservative vowel system which only minimally differed from its ancestral West Uralic vowel system, from which also the Finnic and Mordvin languages derive. In Proto-Saami, however, the vowel system had developed into a radically different form through a process which can be called the ‘Great Saami Vowel Shift’ (cf. the ‘Great Vowel Shift’ that has taken place in English). A detailed description of the various substages of this process can be found in M. Korhonen (1981: 77–125) and Sammallahti (1998: 181–189).

This reorganization of the vowel system is notable in several respects. First, the development was a complex one, as it consists of a large number of individual sound changes of the shift, split, and split-merger type. Second, it was also radical in the sense that it resulted in a complete redistribution of the vowel space: no single vowel in the Pre-Proto-Saami system remained unaltered. Third, in terms of linguistic typology, the resulting Proto-Saami vowel system is a highly

atypical one, especially in contrast to the unremarkable six-vowel system of Pre-Proto-Saami. That such a complex and idiosyncratic series of changes in pronunciation was completed with near 100% regularity implies that it took place in a relatively compact and tight-knit speech community. In other words, the language must have been spoken within a relatively limited geographical area until the Great Saami Vowel Shift was completed.

For the purposes of this paper Pre-Proto-Saami can be defined as the ancestral form of Saami languages that had already diverged from its Uralic sisters, including Finnic, but which had not yet undergone the Great Saami Vowel Shift. In practice, of course, the vowel shift consisted of various substages, and in detailed linguistic analyses one can make more fine-grained distinctions between various proto-stages of Saami, but these are hardly relevant for what will be argued below.

The usefulness of the Great Saami Vowel Shift for reconstructing Saami linguistic prehistory lies in the fact that it provides a rather good criterion for determining at which stage various loanwords have been adopted. Certain loanwords show the effects of this vowel shift and must thus have been present in Pre-Proto-Saami already, whereas others do not and must consequently have been adopted only after the shift. For example, in Germanic loanwords adopted before the vowel shift, we can see the development of Pre-Proto-Saami *a to Proto-Saami *uo, whereas in later loans from the same source a different reflex is found. This is illustrated by the following Lule Saami word duplets consisting of two temporally distinct borrowings of the same Germanic word:

Proto-Germanic (> Old Norse)	Pre-Proto-Saami loan	Proto-Saami loan
*wardō- (> <i>varða</i> ‘guard’)	<i>vuorddet</i> ‘wait’	<i>várddahit</i> ‘stare; look around’
*laigja- (> <i>leiga</i> ‘rent’)	<i>luojkkat</i> ‘lend, borrow’	<i>lájggit</i> ‘rent’
*langan (> <i>langi</i> ‘one of the stomachs of cattle’)	<i>luogge</i> ‘rectum’	<i>(guobmo-)lággá</i> ‘appendix’

Table 2. Temporally distinct Germanic loanword strata in Saami.

There are three source language groups from which loanwords are known to have penetrated into Pre-Proto-Saami in significant numbers: Baltic, Germanic, and Finnic. A notable problem for the analysis of Finnic loanwords is that they are notoriously difficult to stratify and date; it is often quite hard to find unambiguous criteria that would reveal whether a particular loan was adopted to Pre-Proto-Saami, Proto-Saami, or even later into the already differentiated Saami languages. In large part this is due to the phenomenon of ‘etymological nativization’ mentioned in the previous section and discussed in more detail in Aikio (2007a). Especially as regards vowels, even recent loans between Saami and Finnic have often been adapted to the regular sound correspondences displayed by shared Uralic vocabulary. This often makes it impossible to solve at which stage of language development the word was borrowed, and occasionally one even cannot determine whether the word was borrowed at all or inherited from a common parent language instead.

This is an unfortunate situation, as it renders the majority of etymological material essentially useless for the dating of Finnic-Saami loan contacts. However, it appears that the regular vowel correspondence Finnic *a* ~ Saami *uo* never became a model for etymological nativization (Aikio 2007a: 36), and hence it serves as a valid criterion for identifying Finnic loans that entered the language before the Great Saami Vowel Shift. The problem, then, is to distinguish loans showing this vowel correspondence from cognate items due to common inheritance, and this can only be done if the word shows a consonant correspondence that reveals it as a loan. Even though such a limitation rules out the vast majority of all possible sound combinations, at least two such etymologies can be found:

SaaN *buošši* ‘ill-tempered (of a woman)’ < PSaa *puošē < Pre-PSaa *paša < Pre-PFi *paša (> PFi *paha > Fi *paha* ‘bad, evil’). – The word must be a loan, as it displays the secondary Pre-PSaa sibilant *š; an inherited cognate of Fi *paha* would have undergone the change *š > *s and thus developed into the form ***buossi* in North Saami. The loan original must still have had the sibilant *š; the Finnic change *š > *h is even younger than the PSaa vowel shift *a > *uo, as revealed by the later loan SaaN *laš’ši* ‘lean’ (< PSaa *lāššē < Pre-PFi *laiša > Fi *laiha* ‘lean’).

SaaN *buolža* ‘moraine ridge’ < PSaa *puolčē < Pre-PSaa *palci < Pre-PFi *palci (> PFi *palci > Fi *palsi* ‘a hard layer of soil or clay, especially in the bottom of a lake’). – The word must be a loan, as it displays the Pre-PFi change *ti > *ci; the actual inherited cognate of the word is SaaL *buollda* ‘mountain side’ (< *palti).

These etymologies are important as they reveal the existence of loan contacts between Pre-Proto-Saami and Pre-Proto-Finnic. The fact that we can find even two examples of such loans by applying highly exclusive phonological arguments implies that in reality many words must have been borrowed in the same period; usually there just are no criteria for determining whether a particular loanword dates back to this stage.

It is much more illuminating to analyze loans adopted to Pre-Proto-Saami from genetically unrelated contact languages, in particular Baltic and Germanic which are known to have extensively contributed to the lexica of Saami and Finnic languages over long periods of time. The oldest strata of Baltic and Germanic loanwords in Saami are superficially similar in that both are to some extent shared with Finnic, and that Finnic possesses more old borrowings from these sources than Saami does.

The fact that Saami partially shares its oldest Baltic and Germanic loans with Finnic, showing a much stronger influence from these languages, has given rise to the idea that the oldest loans from these sources were not in fact adopted to Saami independently but spread there via Finnic. This was suggested already by Vilhelm Thomsen (1869), the pioneer of Germanic and Baltic loanword studies.

Recently a somewhat similar stance has been cautiously supported by Kallio (2009: 34, 36), who notes the possibility that the majority of Proto-Baltic and the oldest Proto-Germanic loans in Saami were mediated by Pre-Proto-Finnic. On the other hand, Koivulehto (1988; 1999) has emphasized that Pre-Proto-Saami appears to have adopted independent Germanic borrowings already at its earliest stages.

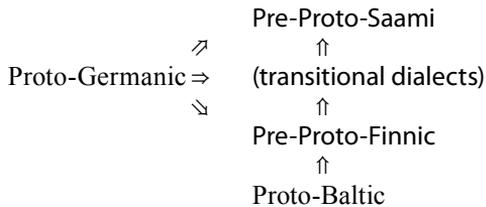
A closer inspection of the etymological material reveals a notable difference between the distributions of Baltic and Germanic loans. If we exclude borrowings which were certainly or at least very probably mediated by Finnic, there seem to be 32 old Baltic loanwords in Saami.² A conspicuous feature of the material is that nearly all of these words have a cognate in Finnish; only eight words (*faggi*, *giehpa*, *johtit*, *leaibi*, *loggemuorra*, *riessat*, *vietka*, *saertie*) have a distribution limited to Saami. The number of Proto-Germanic loans is twice as high, 63 words.³ Of these slightly over a third, 23 words, have a possible cognate in Finnic; even in many of these cases there is evidence suggesting that Finnic item was separately borrowed (Aikio 2006: 10–13, 39).

Thus, we have three independent findings regarding loanword stratification:

- a) Pre-Proto-Saami had adopted loanwords from Pre-Proto-Finnic
- b) Pre-Proto-Saami had a stratum of Proto-Baltic loanwords that was for the most part shared with Pre-Proto-Finnic
- c) Pre-Proto-Saami had a stratum of Proto-Germanic loanwords that was for the most part not shared with Pre-Proto-Finnic

These results can be interpreted in several ways. One possible scenario is that the Baltic loanwords are on average older than the Germanic ones, and were adopted into a ‘Finno-Saamic’ proto-language before its separation to Pre-Proto-Finnic and Pre-Proto-Saami; at the same time, some Germanic loans were also adopted. After the language split, then, the Baltic contacts of Pre-Proto-Saami would have ceased whereas the Germanic contacts would have become more intensive. Pre-Proto-Finnic would have continued to develop under heavy influence of both Baltic and Germanic, which is reflected as a significantly larger number of old Germanic and Baltic loans in the Finnic languages.

While such a scenario is in itself possible, the problem is that we do not really have clear taxonomic evidence for the reality of a distinct ‘Finno-Saamic’ proto-language. Hence, invoking such a proto-language to explain the distributional peculiarities of Germanic and Baltic loans smacks of circular reasoning. If one presumes instead that the Finno-Saamic areal-genetic unit was a dialect continuum, one can posit the hypothesis that the different distributional profiles of Proto-Baltic and Proto-Germanic loans reflect not two periods of borrowing, but instead two different geographical positions of the source languages in relation to Pre-Proto-Finnic and Pre-Proto-Saami; as regards Germanic borrowings, this conclusion has been drawn by Koivulehto (1999). As argued in Aikio (2006: 45), the following picture suggests itself; the arrows indicate major pathways of loanword adoption:



Thus, it seems likely that ‘Finno-Saamic’ was a dialect continuum instead of a proto-language, and that different speech communities within this continuum had different geographic patterns of interaction with outside groups. Both the speakers of Pre-Proto-Saami and Pre-Proto-Finnic have been in independent contact with Germanic speakers, even though a part of the loanwords have diffused between the dialects and eventually become a part of both Finnic and Saami lexicon. On the other hand, only the speakers of Pre-Proto-Finnic dialects had any significant contacts with Baltic-speaking groups, and the Baltic loans found in Saami have secondarily diffused through the dialect continuum. Such an account explains why nearly all Baltic loans in Saami are shared with Finnic.

Against this interpretation one might say that there are, after all, a few Baltic loans in Saami that do not have a cognate in Finnish (Koivulehto 1992a). Their number is, however, only a quarter of all loans, 8 out of 32 cases.⁴ Thinking statistically, such a fraction does not serve as proof of any independent contacts between Pre-Proto-Saami and Baltic, because it cannot be assumed that Finnish would have retained 100% of the vocabulary of Pre-Proto-Finnic. It is predictable that there also are some Baltic loans which were mediated via Pre-Proto-Finnic to Pre-Proto-Saami, but later disappeared in Finnish itself. The figures imply a survival rate of roughly 75% in Finnish for loans from this period, which actually seems rather high.

One must note, though, that there also appear to be three Baltic loans in Saami which lack a cognate in Finnish and which, for phonological reasons, could not even in theory go back to a common Finno-Saamic proto-form as they display the secondary Proto-Saami sibilant *š: SaaN *šielbmá* ‘threshold’, *šear’rát* ‘shine brightly’ and *šuvon* ‘good dog’ (Sammallahti 1999: 79; Aikio 2009: 199–200; Kallio 2009: 35). However, even in these cases one cannot prove that they were not at a somewhat later stage borrowed from Pre-Proto-Finnic forms which subsequently became lost in Finnish.⁵

In the case of one word such an argument runs into difficulties, however. The word for ‘alder’ has apparently been borrowed from Baltic in two different phonological shapes: Pre-Proto-Saami *lejpä (> SaaN *leaihi* ‘alder’) vs. Pre-Proto-Finnic *leppä (> Fi *leppä* ‘alder’).⁶ In this case the diffusion hypothesis is perhaps excluded due to the distinct shapes in Finnic and Saami. However, it would be daring to draw far-reaching conclusions on the basis of one etymology only. Even if the word for ‘alder’ is a relic of direct interaction between Pre-Proto-Saami and Proto-Baltic speakers, the scarcity of the etymological evidence suggests that these contacts have been of mere minor significance. It is still clear that Pre-Proto-Saami remained outside the sphere of any major Baltic

influence, which starkly contrasts with the evidence of the heavy impact of Baltic on Pre-Proto-Finnic.

Recently Häkkinen (2010b) has proposed the following prehistoric interpretation of the Proto-Baltic and Proto-Germanic loanwords in Saami:

“Since the end of the Bronze Age or the beginning of the Iron Age the contacts between Saami and Germanic have intensified, whereas the contacts between Saami and Baltic have decreased in the Iron Age, which in terms of geography can be interpreted so that the Early and Mid-Proto-Saami-speaking area ended up closer and closer to the sphere of Germanic influence or even geographically spread or moved towards it, and on the other hand the speaking area of Finnic may have expanded to cut off the direct contacts between Saami and Baltic.” (Häkkinen 2010b: 57; translated from Finnish.)

Our interpretation obviously turns out to be different, if we accept the conclusion that there never even was significant direct contact between Baltic and Pre-Proto-Saami speakers in the first place. In that case it is unnecessary to postulate any major changes in the speaking areas of proto-languages at this stage. We can instead assume that nearly all of even the oldest Baltic loanwords in Pre-Proto-Saami were adopted via Pre-Proto-Finnic, but the difference between the sound systems of these dialects was still so small at that point that we cannot tell these loanwords apart from cognate items by phonological criteria.

Therefore, it would appear that the contacts between Saami and Baltic never ceased because they never even really began. Baltic loanwords have diffused to the Saami part of Finno-Saamic at many periods, often significantly later than the Finnic word itself was originally borrowed from Baltic. The older the diffusion the more archaic are the phonological features the Saami word exhibits, and the oldest diffused words cannot be told apart from true cognate items. On the basis of the reflexes of Baltic *š, for instance, we can distinguish between three stages of borrowing:

1. The earliest loans show the change *š > *s in Pre-Proto-Saami (e.g. SaaN *suoidni* ~ Fi *heinä* ‘hay’ < *šajna, cf. Lithuanian *šienas* ‘hay’).
2. Younger loans were borrowed after the introduction of secondary *š in Pre-Proto-Saami, but before the Finnic change *š > *h (e.g. SaaI *šišne* ‘tanned leather’ < Pre-PFi *šišna > Fi *higna* ‘leather strap’; cf. Lithuanian *šikšna* ‘tanned leather’).
3. The most recent borrowings reflect Finnic *h* < *š (e.g. SaaN *heaibmu* ‘tribe’ < Fi *heimo* < Pre-PFi *šaimo, cf. Lithuanian *šeima* ‘family’).

In addition to Proto-Baltic and Proto-Germanic loans, it has been proposed that even earlier Indo-European loans were independently borrowed into Pre-Proto-Saami; these would stem from ‘Northwest Indo-European’, an early predecessor of Germanic and Balto-Slavic languages (Koivulehto 2001). If this interpretation is correct, it implies that the dialectal differentiation between Pre-Proto-Saami and Pre-Proto-Finnic has very deep roots. There are reasons for uncertainty,

however. The hypothesis is based on a rather small number of etymologies; according to Sammallahti (2011: 209) there are fifteen such independent loans in Saami. As there are many more ancient Indo-European loans that Saami shares with Finnic or other West Uralic languages, at least a part of the fifteen cases can certainly be explained as words whose cognates have become lost elsewhere.

4. Proto-Scandinavian loanwords and the dating of Proto-Saami

As the Pre-Proto-Saami language transformed into Proto-Saami, its contacts with Germanic language varieties seem to have intensified. There is a very extensive stratum of loanwords adopted from Proto-Scandinavian to Saami, which provides an excellent basis for reconstructing the Saami-Scandinavian contact networks in this period.

The Proto-Scandinavian loans in Saami have a long research history, which in its early stages was characterized by a polarized debate on their very existence. Qvigstad (1893) initially wanted to deny that altogether, whereas Wiklund (1918) claimed their number was as high as 600. Later research revealed Qvigstad's original position as false and Wiklund's figure as greatly exaggerated. In his critical assessment of the phonological criteria for Proto-Scandinavian origin Sköld (1961) found it questionable whether even 200 loans could be shown to date back to the Proto-Scandinavian phase. Since Sköld's study there have been many advances in the field especially due to the extensive loanword research conducted by Koivulehto (e.g., 1992b; 1999). However, no up-to-date synthesis of the stratification of Scandinavian loanwords is available, and Sköld's (1961) monograph on the topic is outdated.

The study of Proto-Scandinavian loans is a rich source for Saami linguistic chronology, because Proto-Scandinavian, despite being a primarily reconstructed language, is also fragmentarily attested in the Early Runic inscriptions. Because many Scandinavian sound changes can be given absolute datings with the help of runic material, this allows us to provide absolute *terminus ante quem* datings for many loanwords in Saami. The forms of Proto-Scandinavian loans in Saami mostly seem to correspond to the phonology of the language attested in Early Runic roughly in the period 200–500 AD, and by 700 AD at the latest the Scandinavian language varieties had undergone remarkable sound changes (Nielsen 2000) after which many of the attested Saami forms could not have been borrowed. The analysis and more exact dating of individual sound changes and loanwords are naturally complicated issues.

Saami linguistic chronology can be correlated with the Scandinavian one by the help of loan etymologies which can be dated as Proto-Scandinavian and at the same time exhibit important Saami phonological innovations. The Proto-Scandinavian loanwords in West Saami languages show certain phonological features that are mostly absent in East Saami. Especially notable is the treatment of word-initial consonant clusters and the phoneme /f/, both of which were originally

foreign to Saami. Both features occur throughout the West Saami area even in old loans deriving from Proto-Scandinavian. In individual words these features have often secondarily spread to Inari Saami and sometimes even to Skolt Saami via North Saami influence, but the easternmost languages Kildin and Ter Saami seem to have acquired initial consonant clusters and /f/ only very recently through borrowings from Russian. The following words serve as examples:

- SaaS *faaroe*, U *fárruo*, P *faarruo*, L *fárro*, N *fárru*, I *fááru* ‘party, company (of travellers)’, Sk *väärr*, K *vārr*, T *varr* ‘trip, journey’ (< PSaa *fārō ~ *vārō) < PScand *farō > ON *fōr* ‘journey’. – The Inari form with *f-* has been influenced by North Saami.
- SaaS *skaaltjoe*, U *skálttjuo*, L *sjkálttjo*, N *skálžu*, I *skálžu*, Sk *skälžž* ~ dial. *kälžž*, K *källž* ‘seashell’ (< PSaa *skälčō ~ *kälčō) < PScand *skaljō > ON *skel* ‘shell’. – The Inari and Skolt forms with *sk-* have been influenced by North Saami.

It is worth the while to examine the distribution of these phonological features in those loans which can be dated as Proto-Scandinavian. The data are presented in Table 3; the actual etymologies in question are listed in an appendix to this paper. The material shows an interesting pattern. In all West Saami languages, forms with the consonant /f/ and initial clusters of the type *sC- are found. However, initial clusters of the type stop + liquid (*pl-*, *pr-*, *tr-*, *kl-*, *kr-*) show a narrower distribution, as they are confined to South, Ume, and Pite Saami.

It is clear that during the Proto-Scandinavian period Proto-Saami had already dialectally diversified, and that the dialects exhibited different patterns of loanword nativization. On the basis of nativization patterns in Scandinavian loans one can distinguish between three proto-dialects at this period:

- *The southwest dialect* (> South, Ume and probably also Pite Saami),⁷ which had adopted:
 - word-initial consonant clusters of the type *sC-
 - word-initial consonant clusters of the type stop + liquid
 - the phoneme /f/
- *The northwest dialect* (> Lule and North Saami),⁸ which had adopted:
 - word-initial consonant clusters of the type *sC-
 - the phoneme /f/
- *The east dialect* (> Inari, Kemi, Skolt, Akkala, Kildin, and Ter Saami), which had adopted none of these features.

In addition to the phonological differences, the table illustrates how the occurrence of Proto-Scandinavian loans is heavily concentrated in the West Saami area. In East Saami their number is smaller, and only few are found in Kildin and Ter Saami on the Kola Peninsula. This also points to the conclusion that Proto-Saami was in fact a diffuse dialect continuum at the time of Proto-Scandinavian contacts, and that the loans were adopted in the West Saami area from which a part of them diffused further east via dialect borrowing.

We can, indeed, verify this interpretation by onomastic evidence. Along the Norwegian coast there are scattered Saami place-names which have been convincingly explained as loans from Proto-Scandinavian; the southernmost of

	S	U	L/Ö	P	L	N	I	Sk	K	T
*fiččō ‘flipper’	–	–	–	–	–	f-	v-	–	v-	v-
*fālēs ‘whale’	f-	f-	f-	f-	sv-	f-	v-	v-	v-	v-
*fiellō ‘board’	f-	f-	f-	f-	f-	f-	–	–	–	–
*fiervā ‘low tide’	f-	–	f-	f-	f-	f-	f-	v-	–	–
*lāffēs ‘flea’	-ff-	-hv-	-f-	-ff-	-ff-	–	–	–	–	–
*mārfē ‘sausage’	-hv-	–	-f-	–	-f-	-f-	-f-	-f-	–	–
*svālfō ‘swallow (bird)’	–	-hv-	–	-f-	-f-	-f-	-v-	-v-	–	–
*skāklē ‘gull’	–	–	–	sk-	sk-	sk-	–	–	–	–
*(s)kālčō ‘seashell’	–	sk-	sk-	–	sjk-	sk-	sk-	(s)k-	k-	–
*skāvčā ‘beard’	sk-	sk-	sk-	sk-	sk-	sk-	–	–	–	–
*skientō ‘worn-out hide’	–	–	–	–	–	sk-	–	–	–	–
*skievēs ‘jumpy, nervous’	–	–	–	–	sk-	sk-	–	–	–	–
*skovē ‘shape, image’	sk-	–	sk-	–	sk-	sk-	–	–	–	–
*(s)lājvē ‘weak’	l-	l-	sl-	kl-	sl-	l-	l-	l-	l-	–
*(s)lāvčā ‘bottlefly’	–	–	–	–	sjl-	l-	–	–	–	–
*(s)likt— ‘smooth and flat’	sl-	–	sl-	–	–	l-	–	–	–	–
*snāvēs ‘short-haired’	–	–	–	–	sn-	–	–	–	–	–
*stāhčō ‘crucible’	–	st-	st-	–	st-	st-	–	–	–	–
*svālfō ‘swallow (bird)’	–	sv-	–	sv-	f-	sp-	sp-	sp-	–	–
*krāššē/ō ‘bog-bean’	kr-	–	gr-	–	–	–	–	–	–	–
*(k)rāvccē ‘porridge’	kr-	kr-	gr-	kr-	r-	r-	r-	–	–	–
*krāvēs ‘grey’	kr-	kr-	gr-	kr-	r-	–	–	–	–	–
*krievvē ‘reindeer herd’	kr-	kr-	gr-	–	–	–	–	–	–	–
*(p)lāk(k)ō ‘flat area?’	pl-	pl-	pl-	–	l-	l-	–	–	–	–
*(p)lāssā ‘skerry’	pl-	–	pl-	–	l-	l-	l-	l-	–	–
*plievvēs ‘shy’	pl-	–	bl-	–	–	–	–	–	–	–
*pruosē ‘severe cold’	–	–	pr-	–	–	–	–	–	–	–
*(p)ruvdēs ‘bride’	pr-	pr-	br-	–	r-	–	–	–	–	–
*(t)rāstēs ‘thrush’	tr-	tr-	–	r-	r-	r-	r-	r-	r-	r-

Table 3. Initial consonant clusters and the phoneme /f/ in Proto-Scandinavian loans in Saami.

these are found in the South Saami area. The clearest examples are South Saami *Måefie* (Mo i Rana) and *Mueffie* (Mo i Vefsn), which due to their consonant /f/ must have been borrowed from Proto-Scandinavian *mōh^waz (> ON *mór* ‘heath’). Another interesting example is *Laakese*, the older South Saami name for the Namsen river which is now commonly called *Nååmesje*. This seems to reflect Proto-Scandinavian *laguz (> ON *lōgr* ‘sea, lake, water’, Norwegian *-lāgen* in river names); the loan must have been adopted before the Scandinavian sound change *z > *r. These as well as several other plausible candidates for Proto-Scandinavian loan names have been discussed by Bergsland (1996). Similar cases are found in the North Saami area as well. The best-known one is the name of the island *Máhkarávju* (Magerøy) in the extreme north of Norway;

-*ávju* can only reflect a Proto-Scandinavian form **aujō* and certainly not its later Old Norse development *ey* ‘island’. An apparently previously unnoticed case is the fjord name *Vávžavuotna* (Veggefjord) on the island Ringvassøy north of Tromsø. Here *Vávža-* (< PSaa **vāvččē-*) seems to reflect PScand **wagja-* (> ON *veggr* ‘wedge’). The treatment of the consonant cluster is the same as in well-known borrowings such as SaaN *ávža* ‘bird-cherry’ < PScand **hagja-* (> ON *heggr* ‘bird-cherry’).

Hence, it can be concluded that Proto-Saami had dialectally diversified before the end of the Proto-Scandinavian phase ca. 500–700 AD, and that in Scandinavia its dialects were already spread over roughly the same area where Saami languages have been spoken in historical times. Proto-Scandinavian loans thus yield a *terminus ante quem* for the presence of Saami languages in their current areas in Scandinavia. On the basis of the dating of individual sound changes such, such as **z* > **r*, Heikkilä (2011: 68–69) concludes that borrowed place-names demonstrate the presence of Saami languages in Scandinavia by 500 AD at the latest; the same conclusion was presented by Bergsland (1996) already.

Proto-Scandinavian loanwords also provide ample material for the reconstruction of the social setting of these contacts. This aspect has not gained very much attention in newer studies on the topic, and a thorough analysis of the material from a semantic and cultural perspective would be highly desirable. However, already a cursory application of the classical ‘Wörter und Sachen’ approach reveals notable patterns. The following six cultural domains are especially interesting (the cited forms are North Saami unless otherwise indicated):

sea and seafaring	<i>áhpi</i> ‘open sea’, <i>bárru</i> ‘wave’, <i>fiervá</i> ‘beach revealed by low tide’, <i>ákŋu</i> ‘thole’, <i>dilljá</i> ‘rowing seat’, <i>gielas</i> ‘keel’, <i>rággu</i> ‘boat rib’, <i>gáidnu</i> ‘rope for pulling a boat or a net with’, <i>ládde</i> ‘land a boat’, <i>sáidi</i> ‘saithe’, <i>sildi</i> ‘herring’, <i>fális</i> ‘whale’, <i>fiščču</i> ‘seal’s flipper’, <i>skálžu</i> ‘seashell’, <i>skávli</i> ‘gull’, <i>gáiru</i> ‘great black-backed gull’
domestic animals	<i>gussa</i> ‘cow’, <i>gálbi</i> ‘calf (of a cow)’, <i>sávza</i> ‘sheep’, <i>láppis</i> ‘lamb’, <i>gáica</i> ‘goat’, <i>vierca</i> ‘ram’, L <i>hábres</i> ‘ram’, <i>mielki</i> ‘milk’, <i>lákca</i> ‘cream’, <i>ullu</i> ‘wool’, <i>ávju</i> ‘meadow hay’, <i>gáldet</i> ‘castrate’
agricultural products	<i>rákca</i> ‘gruel’, <i>láibi</i> ‘bread’, <i>gáhkku</i> ‘flatbread’, <i>gordni</i> ‘grain’
iron	<i>ákšu</i> ‘axe’, <i>niibi</i> ‘knife’, <i>ávju</i> ‘edge of a blade’, <i>dávžat</i> ‘whet’, ⁹ <i>stážžu</i> ‘crucible’, <i>áššu</i> ‘glowing coals’ (< *‘hearth (in a smithy)’), I <i>ävli</i> ‘chain’
fur trade	<i>skieddu</i> ‘old and worn hide’, <i>ráhččat</i> ‘spread a skin to dry’, ¹⁰ L <i>skidde</i> ‘skin (as merchandise)’, L <i>árre</i> ‘hair side of a hide’, L <i>hálldat</i> ~ <i>álldat</i> ‘scrape a hide clean’, S <i>maarhte</i> ‘marten’
marriage and family	<i>dievdu</i> ‘adult man, married man’, <i>gállis</i> ‘husband, old man’, <i>máhka</i> ‘a man’s brother-in-law’, S <i>provrese</i> ‘bride’, S <i>daktere</i> ‘married daughter’, <i>árbi</i> ‘inheritance’

The material clearly shows that seafaring, domestic animals and agricultural products were introduced to the Saami via Proto-Scandinavian speakers. It is interesting that words for the most common domestic animals and basic agricultural products were borrowed from Proto-Scandinavian, as there is little evidence of these animals actually having been kept by the Saami so early, let alone that the Saami would have had fields for growing grains. This suggests the existence of a trade network, in which the Saami acquired animal and agricultural products as well as iron implements from Proto-Scandinavian speakers.

This means that the Saami must have possessed means to purchase these products. Interestingly, there are also a few borrowings which seem to be connected with animal furs and hides. As it is known that Scandinavia provided furs for Ancient Rome already in the 1st century AD (Jones 1968: 23), it is not a great logical leap to connect the Saami in Scandinavia as a producer node in this trade network. This has already been proposed on the basis of archaeological evidence, and it is in any case known from the historical record that the Saami later played a key role in the Scandinavian fur trade (Zachrisson & al. 1997: 228–234). In this regard, it is significant that also words related to marriage and in-laws have been borrowed from Proto-Scandinavian. This suggests the occurrence of mixed marriages, and one can speculate that marriages between Scandinavian men and Saami women could have served as a way of securing trade relations, as has been suggested by Storli (1991). A similar institution, in fact, developed in the North American fur trade run by the English and the French, giving rise to the Métis ethnic group of mixed European and Native American ancestry (van Kirk 1980).

5. The Palaeo-Laplandic substrate in Saami

Proto-Scandinavian loans demonstrate the existence of a Saami-Scandinavian contact network in Lapland already in 500 AD, but they do not reveal how far earlier we can trace the history of Saami languages in the region. Many scholars have tended to see the Saami roots of Lapland as much older, going back to the Early Bronze Age (e.g. Carpelan & Parpola 2001) or the Stone Age (Sammallahti 2011). Some have even entertained the fantastic notion that some of the first settlers of Lapland after the last Ice Age could have been linguistic ancestors of the Saami – for example Halinen (1999), who has later (2011) changed his opinion, however.

In a methodological perspective it is interesting to note that the varying early datings are typically justified by the same type of argument: it is common to claim that the ‘archaeological continuity’ in a given region – i.e., the lack of evidence for some kind of cataclysmic event in the archaeological record – suggests that no language shift has taken place. This is, however, a *non sequitur* argument, because language shift is not the type of social process that needs to be accompanied by radical change in material culture (cf. Gal 1996). Häkkinen (2010a) has demonstrated the weakness of arguments based on archaeological

continuity, and emphasized that linguistic datings must be established via linguistic and not archaeological methods. Hence, the right question to ask is whether there are any actual linguistic data that could establish a *terminus post quem* for the presence of Saami languages in Lapland.

According to an old theory formulated by Wiklund (1896: 7–14), the Saami had earlier spoken a non-Uralic language he called ‘Protolappisch’, which they supposedly had then switched to a Uralic one adopted from ancestors of the Finns. While the idea was initially popular, it later fell into disfavor among linguists, not least because Wiklund was never able to produce any convincing evidence of the former existence of his hypothesized ‘Protolappisch’ language. In retrospect it is also easy to see the theoretical shortcomings of the model that derive from the *Zeitgeist* in the turn of the 20th century: linguistic and racial origins were thoroughly confused, whereas ethnic categories were seen as everlasting and unchanging. In Wiklund’s view the Saami had always been Saami regardless of whether they had spoken a Saami language or some unknown non-Uralic language.¹¹

While Wiklund’s theories of Saami prehistory were clearly wrong in almost all the details, his basic hypothesis of a language shift still remains completely plausible. There is a very simple reason to assume *a priori* that such a shift must at some point have occurred: while it is known that there has been continuous human inhabitation in Lapland for some 12 000 years, the Uralic proto-language itself can hardly be dated older than some 4000–6000 years BP (cf. Kallio 2006). Thus, instead of asking *whether* a language shift from unknown languages to Saami has occurred in Lapland it is more rational to try to find out *when* it did occur.

In retrospect it is not surprising that Wiklund could not present any reasonable linguistic evidence in support of his ‘Protolappisch’ theory. Saami historical phonology and etymology were still so poorly understood in his times that it would simply not have been possible to reliably identify traces of disappeared languages in Saami. Now the situation is very different, as Saami historical linguistics has developed into a highly advanced field of research, and also word origins have been extensively studied. This provides a much more solid foundation for searching for the elusive traces of lost languages of Lapland. To avoid the confusing ethnic implications of Wiklund’s ‘Protolappisch’, these lost languages are best called ‘Palaeo-Laplandic’; we know absolutely nothing of the ethnic identities of the people who spoke these languages, except that they certainly did not identify themselves as ‘Saami’.

Before proceeding to examine concrete linguistic evidence, however, it is worth the while to ponder how a language shift actually happens. On the level of a local community the process of language shift is typically both rapid and irreversible. The shift of the language of daily communication usually occurs over the course of no more than a few generations. As the speech community adopts a new language, bilingualism first develops, and only rarely this will remain a steady state. More probably the process proceeds to a stage where nearly all young adults start speaking the target language to children, and at this point it is

highly unlikely that the completion of the shift could be avoided any longer. The relatively few cases where language shifts have been successfully reversed after this stage seem to result from carefully planned and coordinated revitalization attempts which are unlikely to have occurred in premodern times.

The basic path of language shift is neatly captured in Haugen's (1953) classical five-step scheme of the development of the speakers' competence in the outgoing language (A) and the target language (B):

$$A > Ab > AB > aB > B$$

The intermediate stage in a language shift is a bilingual speech community with skewed patterns of crossgenerational language use: the outgoing language becomes confined to communication among and with older generations, whereas the target language is increasingly spoken to peers and members of younger generations. The details of the process are naturally subject to much variation. The exact social causes of language shift can be complex and heterogeneous, but usually the speakers believe they will improve either their own or their children's chances of social or economic success by switching to use the target language (Gal 1996). The obsolescence of the outgoing language is not necessarily an aim in itself, but rather an unintended consequence of the speakers' language choices.

Language shift in a wider network of communities is the cumulative effect of multiple shifts on the local level. The more complicated nature of the process on the large scale does not, however, mean that language shift could not occur relatively quickly in a widespread communication network. In fact, the reverse is often true, because the social factors causing the shift normally affect many local communities at the same time. As an example one can consider Ireland: in most parts of the country the Irish language has fallen from an overwhelmingly dominant position to the brink of extinction over the course of mere 300 years (Hindley 1990). Only in some remote rural areas Irish remains a language of everyday communication.

During shift the outgoing language typically exerts 'substrate influence' on the target language. It needs to be appreciated that 'substrate' is merely a cover term for various kinds of features that may have been introduced to the target language through very different sociolinguistic pathways during language shift. Influence for example in the fields of phonology and syntax is typically caused by 'imperfect group learning' of the target language, which results in the creation of new structural norms that were influenced by the speakers' native language (cf. Thomason & Kaufman 1988: 87–88). In contrast, loanwords and place-names enter the target language through conscious borrowing, either by members of the shifting group themselves or by native target language speakers who have become members of the shifting community.

While the concept of 'substrate influence' is an umbrella term for heterogeneous phenomena, it appears that only certain parts of these phenomena easily lend themselves to inspection via historical linguistic methods. According to

Saarikivi (2004a: 192) there is a methodological reason to focus on the lexical component of substrate – loanwords and place-names – when studying the ethnolinguistic past: while also grammatical and typological features may have substrate origins, this is often difficult to prove, whereas the origins of words or place-names can be identified by the received methods of etymological research. Therefore, the lexicon and the place-name systems of the Saami languages are the components of language in which an unknown substrate could be discerned, if anywhere.

The challenge in studying the influence of unknown languages is that normal methods of loanword research are useless when there are no data on the putative source languages. This creates the risk that borrowing from an unknown substrate becomes an all too easy “explanation” for the origin of any word that proves tough to etymologize. Methods to overcome this problem have been developed in the field of Indo-European studies, however (e.g., Salmons 1992), and adapted to the study of Saami in Aikio (2004). Following the criteria I have earlier applied for the verification of unknown substrate, the following test can be postulated:

- *The quantitative criterion*: is there a large number of lexical items that lack an etymology?
- *The structural criterion*: do potential substrate words show non-native phonological or morphological structures, which are indicative of loan origin?
- *The criterion of irregular correspondence*: do potential substrate words show irregular sound correspondences between dialects or languages, thus indicating parallel borrowing from an outside source?
- *The semantic criterion*: do words of unknown origin cluster in semantic fields typical of substrate vocabulary (e.g., the natural environment and culture-specific concepts)?
- *The onomastic criterion*: is assumed substrate vocabulary paralleled by a corpus of place-names of unknown origin which exhibit the same kinds of non-native structures?

If the answer to each of these research questions is ‘yes’, the presence of an unknown substrate in the lexicon is virtually certain. A negative answer to all questions, on the other hand, implies zero evidence for unknown substrate. Naturally, the result of the test could also remain in the broad gray area between these two extremes, in which case substrate influence can merely be considered a more or less likely hypothesis.

In the case of Saami, however, it is demonstrated in Aikio (2004) that the answer to each question in the test is unambiguously positive. As regards the quantitative criterion, 550 Proto-Saami word-roots are of unknown etymology (Sammallahti 1998: 125), which amounts to more than one third of the entire reconstructed lexicon (Lehtiranta 1989). As there are also many more words with a narrower distribution in Saami languages that likewise lack any explanation of origin, the number of potential substrate words certainly exceeds one thousand.

As noted above, the Great Saami Vowel Shift provides a very useful criterion for establishing the maximum age of many Saami word-roots. The

completion of this chain shift gave rise to a number of new combinations of first and second syllable vowels which never occur in word-roots with a Pre-Proto-Saami etymology. Some of these vowel combinations are frequent in vocabulary of unknown origin, suggesting that extensive borrowing from unknown languages has taken place after the completion of the Great Saami Vowel Shift. As an example, we can consider North Saami nouns of unclear etymology that point to the new Proto-Saami vowel combinations *ie-ē, *ie-ō, *ā-ë, and *ā-ō:

- *ie-ē: *bielbi* ‘arrow’, *čielkkis* ‘black guillemot’, *čier’ri* ‘gravelly ground, moraine’, *dierpmis* ‘thunder god’, *fierbmi* ‘fishing net’, *fieski* ‘winter grazing ground (of a reindeer herd)’, *giegir* ‘windpipe’, *giehppi* ‘hollow under a reindeer’s lower jaw’, *giezzi* ‘short river between two lakes’, *jiegis* ‘bearded seal’, *miessi* ‘reindeer or moose calf’, *riehppi* ‘valley up in the mountains which is difficult to access’, *siekkis* ‘dew-claw (on a dog’s foot)’, *skier’ri* ‘dwarf-birch’, *vieksi* ‘young common seal’, *vielmmis* ‘deep place in a small river’, *vielti* ‘hillside, mountain side’
- *ie-ō: *biedju* ‘den, lair’, *dieigu* ‘radius (bone)’, *dielku* ‘spot’, *jiellu* ‘cracked interior of a tree-trunk’, *liehkku* ‘upright board on the back of a toboggan’, *liessu* ‘den of a fox’, *liehmu* ~ *lievhnu* ‘mild weather’
- *ā-ë: *ádga* ‘grassy terrain along a river’, *állat* ‘snow bunting’, *bákša* ‘castor sack of a beaver’, *dábba* ‘uppermost marrow-bone in the foreleg’, *gálva* ‘dead birch’, *hávda* ‘eider’, *njálla* ‘arctic fox’, *njárga* ‘cape, land point, peninsula’, *rás’ša* ‘high and barren mountain’, *sáibma* ‘net for small fish’, *sálga* ‘piece of meat or fish (in soup)’, *sássa* ‘future bride, bridegroom or in-law’, *sátnja* ‘worn-out fishing net’, *šákša* ‘capelin’
- *ā-ō: *ákču* ‘common seal’, *dápmot* ‘brown trout’, *fápmu* ‘strength’, *gákšu* ‘wolf bitch’, *jáldu* ‘cool weather in summer’, *láhppu* ‘thick sinew-thread’, *lávvu* ‘tent’, *njáhcu* ‘thaw (in winter)’, *ráktu* ‘flat stone, stone slab’, *rásšu* ‘cold and heavy rain’, *sátku* ‘landing place (for boats)’, *skávdu* ‘two-year old harbor seal’, *spáhčču* ‘bunch of sinew-thread’

In addition to vowel combinations, features of consonantism may also suggest foreign origin. An obvious sign is the initial consonant cluster found in a few potential substrate words (cf. *skier’ri*, *spáhčču*, and *skávdu* above). Occasionally, also Saami languages further west have an initial cluster in cognates of North Saami words that lack one: e.g., N *láhppu* ‘thick sinew-thread’ ~ L *sláhppo*, S *slaahpoe* ‘reindeer sinew (for making sinew-thread)’, N *liehkku* ~ L *sliehkko* ‘upright board on the back of a toboggan’, N *liessu* ‘lair of a fox’ ~ S *pleasoe* ‘den, lair’. Notably, Qvigstad (1945: 211) already observed that South Saami has many etymologically obscure words with initial consonant clusters, and suspected that these words could be borrowings from the unknown ‘Protolappisch’ substrate language envisioned by Wiklund.

It is also remarkable that many of the words of unknown origin show irregular sound correspondences between Saami languages. About two dozen

examples are given in Aikio (2004: 24–26), and many more could be cited. It is interesting that sometimes these irregular sound correspondences appear to show a certain degree of systematicity. For example, there are five likely substrate words displaying the irregular correspondence between West Saami *s and East Saami *š:

- SaaS *saahpesh*, SaaN *sáhppasat* (< *sāppēs-äk) ~ SaaK *šāḡp.rəs* ‘small intestine’ (< *šāppērēs)
- SaaS *saasne* ‘half-dry, rotten tree’ (< *sāsñē) ~ SaaN *suostu* ‘rotten tree’ (< *suosnō) ~ SaaSk *šošnn* ‘dead and dry pine-tree’ (< *šošnē)
- SaaS *satnje* ‘fishing net’ (< *sēññē) ~ SaaN *sátnja* ‘worn-out fishing net’ (< *sāñē) ~ SaaSk *šaannj* ‘rag’ (< *šāñē)
- SaaN *siekkis* (< *sieñkēs) ~ SaaK *šijke* ‘dewclaw (on a dog’s foot)’ (< *šiñkējē)
- SaaN *suonjar* ‘beam, ray (of light)’ (< *suoñēr) ~ SaaK *šūñ.seđ* ‘shine through the clouds (of the sun)’ (< *šuoñēstē-)

Notably, all these words display also other irregularities in sound correspondence. One can postulate the hypothesis that they were separately borrowed from distinct but related source languages, which had a regular correspondence between an *s*-type sibilant in the West Saami area and an *š*-type sibilant in the East Saami area. This hypothesis appears to receive some support from the fact that there are relatively few North Saami words with initial *š*- that are of unknown origin, but quite many such words in Skolt and Kola Saami (cf. T. I. Itkonen 1958: 541–565).

As the semantics of words of unknown origin are examined, it is immediately clear that a large majority of them belongs to semantic fields in which substrate influence is typical. There are literally hundreds of words of obscure origin which in one way or the other pertain to the natural environment; these include names of birds, fish, and marine mammals; words for topographic features; and words pertaining to snow, ice, and weather conditions (Aikio 2004: 12–14). It is particularly telling that many words refer to features that are typical of the natural environment of Lapland, but rare or nonexistent in more southern Finland and Karelia. Consider the following selected examples:

bird names	<i>állat</i> ‘snow bunting’, <i>biehkan</i> ‘rough-legged buzzard’, <i>bovtáš</i> ‘puffin’, <i>bupmálas</i> ‘northern fulmar’, <i>giron</i> ‘rock ptarmigan’, <i>guovssat</i> ‘Siberian jay’
marine animals	<i>šuoŋja</i> ‘shark’, <i>morša</i> ‘walrus’, <i>buovjja</i> ‘beluga’
plants	<i>skierri</i> ‘dwarf-birch’, <i>lageš</i> ‘stunted mountain birch’
topography	<i>balsa</i> ‘palsa (frost peat mound)’, <i>rášša</i> ‘high and barren mountain (with no vegetation on top)’, <i>ráktu</i> ‘flat stone, stone slab’, <i>riehppi</i> ‘valley up in the mountains which is difficult to access’
climate	<i>cuokca</i> ‘naturally formed bridge of ice and snow’, <i>jassa</i> ‘patch of perpetual snow in the mountains in summer’

Words related to reindeer form a particularly interesting semantic field which contains many roots of obscure origin. These include words for describing reindeer according to their age, sex, and appearance; words pertaining to the behaviour of reindeer; and a highly elaborate lexicon for describing reindeer anatomy:

- *luohpet* ‘one-year old reindeer cow which has had a calf’, *čoašččis* ‘reindeer cow which has lost its calf’, *vuobirs* ‘three-year old reindeer bull’, *goasohas* ‘five-year old reindeer bull’, *nulpu* ‘reindeer bull which has shed its antlers’, *gabba* ‘completely white reindeer’, *miessi* ‘reindeer calf’, *čearpmat* ‘one-year old reindeer’
- *bálgat* ‘move restlessly about (of reindeer during the insect plague)’, *livvut* ‘lie down (of reindeer)’, *njolgi* ‘trot (of reindeer)’, *čora* ‘small reindeer herd’, *čiegar* ‘winter pasture (where the snow has been trampled and dug up by reindeer)’, *suovdnji* ‘hole dug by reindeer in snow (when looking for lichen)’, *fieski* ‘winter pasture (where reindeer have recently dug up the snow)’
- *čuoossi* ‘skin on the forehead’, *ginal* ‘chin-piece (on a reindeer hide)’, *feavli* ‘leg hole on a hide (when the leg skins have been cut off)’, *njávvi* ‘long hair on the neck’, *seahkku* ‘long hair on the hoofs’, *námmi* ‘skin on the antlers’, *dábba* ‘upper marrowbone on the foreleg’, *cabbi* ‘lower marrow-bone on the foreleg’, *njehcahas* ‘lower marrow-bone in the hind leg’, *noras* ‘upper marrow-bone in the foreleg’, *alesgahcin* ‘a small backward branching part in an antler’, *čeaksa* ‘omasum’, *doggi* ‘abomasum’, *njárčá* ‘wall of the abdomen and the diaphragm’, *vuossa* ‘womb’, *giehppi* ‘hollow under the lower jaw’, *čagar* ‘gristle; penis’, *guoccat* ‘penis’, *čoamoahas* ‘shoulder (as a meat cut)’, *fáhkká* ‘calf of the leg (as a meat cut)’, *muošmi* ‘meat between the thigh and ribs’, *urkádeahkki* ‘biceps’, *válká* ‘fat on the neck’, *gielagas* ‘achilles tendon (of a reindeer)’, *morči* ‘large vein’, *beađbi* ‘shoulder-blade’, *gátnis* ‘sacrum’

Notably, none of the likely substrate words connected with reindeer contain anything that would seem to testify of reindeer herding. This is quite logical, as in a hunting society only small numbers of tame reindeer would have been used as decoys and for transport. The shift to large-scale reindeer herding occurred among the Scandinavian Saami in the Middle Ages, and during the transition also the terminology of wild reindeer hunting became adapted to the new form of livelihood (Sommerseth 2011). The fact that this terminology has also preserved large numbers of substrate words suggests that Palaeo-Laplandic groups had a profound impact on the practices and culture of wild reindeer hunting among the prehistoric Saami.

The final criterion for verifying the existence of an unknown substrate involves place-names. As shown in Aikio (2004: 17–20), there are extremely many Saami place-names that are of obscure origin. For the most part these place-names belong to major topographic formations, such as rivers, lakes, fjords, and mountains, which suggests they are old. Many such names include phonological features that reveal their foreign origin, such as secondary vowel combinations and initial consonant clusters. This indicates that the place-names have their

origin in the same substrate languages that have also extensively contributed to the lexicon of Saami.

Interestingly, one also finds some recurring elements in substrate place-names which seem to be connected with particular topographic features. The most evident case are North Saami mountain names which combine an etymologically obscure initial element with an ending *-ir* (< **-ērē*): e.g., *Čuosmmir*, *Gealbir*, *Hoalgir*, *Jeahkir*, *Nuhppir*, *Nussir*, *Ruohtir*, *Šuošmir*, *Váhčir*. It seems highly likely that the element **-ērē* reflects a substrate language lexeme meaning ‘mountain’. There are also a few other recurrent name components which probably have a substrate origin, at least **skiečč-* ‘watershed’, **čār-* ‘uppermost lake’, **jeak(k)-* ‘isolated mountain’ (cf. *Jeahkir* above), **nus-* ‘mountain top on the edge of a mountain area’ (cf. *Nussir* above), **sāl-* ‘large island in the sea’, **čiest-* ‘seashore cliff’, and **inč-* ‘outermost island’. (Aikio 2004: 21–25.)

The Palaeo-Laplandic substrate in the Saami lexicon and place-names also provides us with a straightforward method of dating the language shift. The fact that unetymological vowel combinations are found in numerous substrate words shows that they have been adopted after the Great Saami Vowel Shift. Even more importantly, substrate words also include initial consonant clusters in the West Saami area, quite like Proto-Scandinavian loans. Occasionally, one also finds the phoneme /f/ in likely substrate items (e.g. North Saami *uffir* ‘rocky seashore’, *láfol* ‘Eurasian Dotterel’, *skuolfi* ‘owl’). This shows that the adoption of substrate vocabulary must still have continued after the break-up of Proto-Saami and at the time of the emergence of Northwest and Southwest Saami proto-dialects in Scandinavia. The same is, of course, implied by substrate place-names as well as by the fact that numerous substrate words show very restricted distributions in the Saami languages, and cannot thus be reconstructed to Proto-Saami.

Thus, we arrive at the surprising conclusion that substrate influence of Palaeo-Laplandic languages was *contemporaneous* with the adoption of Proto-Scandinavian loanwords. As the Proto-Scandinavian contacts in Scandinavia must be equated with the Early Runic era ca. 200–700 AD, we thus have an absolute dating also for the spread of Saami languages to Lapland and for the disappearance of the unknown Palaeo-Laplandic languages. All evidence indicates that it has taken place only after the beginning of our era, likely about 1500 years ago.

We still need to deal with one argument that is at odds with the interpretation suggested above. Sammallahti (2001; 2011) has also presented linguistic evidence in support of his view that Pre-Proto-Saami was spoken in Lapland in the Late Stone Age more than 5000 years ago. This evidence involves the Northwest Indo-European loans present in Saami languages (cf. section 3 above). Sammallahti’s argument is based on a statistical comparison of the distributions that Proto-Uralic words and loans of varying age show within Saami languages. His method is to examine how widely each word in a given lexical stratum is attested in Saami, and then calculate a ‘distributional index’ for each stratum, which indicates the average spread of words from a particular source.

His figures indicate that the very old Northwest Indo-European loans confined to Saami have a clearly lower distributional index (4,7) than either Proto-Uralic words or loans from Indo-European sources that are shared with other Uralic languages (which have distributional indexes between 7 and 8,8). As an explanation he suggests that the Northwest Indo-European loans were acquired after the Saami languages spread to their present areas in the North (Sammallahti 2001; 2011: 212).

Difficulties in this interpretation have, however, been identified by Häkkinen (2010a: 29). The problem is that we are dealing with a statistical argument based on a very small set of data (19 loan etymologies), and as such it is highly sensitive to minor errors and random variation in the data. Now it appears that two etymologies in the data must be abandoned altogether, whereas in six other cases the distribution turns out to be wider than reported by Sammallahti.¹² Once these corrections to the data are made, a recalculation changes the average distributional index of independent old Indo-European loans from 4,7 to 6,3, and the difference of this figure to the slightly higher distributional indexes of other strata is not statistically significant. Moreover, even if some of these lexical isoglosses could be shown to be very ancient, this would not yet prove that they were formed in their present locations instead of having been relocated there through linguistic expansion. For example, archaic western-eastern lexical isoglosses in North Finnic (e.g., *ovi* vs. *uksi* ‘door’, *vihta* vs. *vasta* ‘bath whisk’, *nisu* vs. *vehnä* ‘wheat’, *virutta* vs. *huuhtoa* ‘rinse’) now materialize in northern dialects of Finnish and Karelian where they were carried along with the North Finnic expansion. Therefore, Northwest Indo-European loans seem to provide evidence neither for nor against the early presence of Pre-Proto-Saami in the North, and they do not oppose the dating of the language shift from Palaeo-European to Saami in Lapland proposed here.

6. The Saami substrate in North Finnic

As the chronology of the Saami languages in Lapland is now established, we can turn our attention to the more southerly areas where the origins of the Saami language branch must be sought. It is well-known that still in the Middle Ages vast parts of the Lakeland of inland Finland and Karelia were not yet settled by North Finnic tribes, and that Saami people known as ‘Lapps’ in historical sources inhabited these lands. The former wide spread of Saami habitation in Finland was already recognized in the earliest studies on the history of the Saami. Schefferus (1673) argued that the Saami had earlier lived in southern Finland but they had been driven out of these territories by the Finns before the introduction of Christianity. His evidence mainly involved fragments of Finnish and Saami oral tradition. Later historical research also revealed ample documentation of ‘Lapps’ living in the South of Finland (T. I. Itkonen 1948 I: 92–97).

It must be said that even though the Saami past of Finland was already recognized by early scholars such as Schefferus, the treatment of the topic by

later research has often been haphazard and biased. Three kinds of problematic approaches to the treatment of the historical ‘Lapps’ have been characteristic of historiography of Finland: 1) ignoring ‘Lapps’ by leaving them unmentioned; 2) denying that the ‘Lapps’ were Saami; and 3) denying that the ‘Lapps’ had historical significance. Such problems of research history have been recently examined by Lehtola (2008).

It is, of course, no coincidence that these perspectives originally developed in the context of 19th century Finnish nationalism which created a need to legitimize the claim to territories that had been colonized by the Finns. Nevertheless, it is strange that the view never really became subject to thorough critical reevaluation but instead slowly evolved into a form of pathological denial in the mainstream of historiography of Finland. While it is beyond the scope of this essay to examine why this has happened, it must be emphasized that the history of what is now Finland is in large part the history of the Saami, and that the general disregard of this fact is not based on rational arguments but on an ideological perception of the Saami as ‘people without history’ (cf. Wolf 1982). While probably no modern historian would consciously subscribe to such a way of thinking on the theoretical level, its legacy is still very much visible on the practical level of historiography.

There is, of course, reason to ask to what extent modern ethnic labels such as ‘Saami’ can be used in reference to historical and prehistoric populations. Huurre (1979: 151–154) has criticized the view according to which the historical ‘Lapps’ of the Finnish Lakeland really were an ethnic group or had any connection with the Saami of Lapland. While these questions are in themselves legitimate, the discussion surrounding them has been confusing, as both Huurre and his followers on this issue have generally tended to ignore all linguistic evidence regarding the language of the ‘Lapps’ (see Lehtola 2008). It ought to be clear, however, that the question of the ethnicity of the historical ‘Lapps’ cannot be reasonably approached without taking into account what languages they spoke.

Scholars such as Wiklund (1911–1912) and T. I. Itkonen (1948 I: 99–107) have demonstrated through onomastic studies that in large parts of southern Finland substrate place-names deriving from extinct Saami languages are found. Modern research based on more critical methods and more comprehensive materials has both verified this conclusion and established many new etymologies (Saarikivi 2004b; Aikio 2007c). More recently also many examples of loanwords deriving from these lost Saami languages have been identified in Finnish and Karelian dialects (e.g. O. Korhonen 1979; Koponen 1996; Aikio 2009). Thus, the southern ‘Lapps’ mentioned in historical sources have undoubtedly been Saami at least in the sense that they have spoken Saami languages. To have a convenient term, these extinct and unknown languages can be called Lakeland Saami, in contrast to the surviving Lapland Saami languages.

While the existence of place-names of Saami origin in southern Finland has been known for more than a century, there exists no modern comprehensive analysis of the Saami elements in the Finnish nomenclature. The earlier studies by Wiklund and T. I. Itkonen are seriously outdated, and while methodological

questions and the distribution of some widespread loan name types have been recently studied (Saarikivi 2004b; Aikio 2007c), the potential of this line of study has been scarcely realized so far. This is evident from the fact that even names of Finnish cities such as *Tampere* (Rahkonen 2011b; Heikkilä 2012) and *Ilomantsi* (Aikio 2003) have recently turned out to have straightforward Saami etymologies.

In the absence of a comprehensive study on the topic we may still estimate the spread of Lakeland Saami languages in Finland by examining the distribution of certain widespread substrate place-name types. The most plausible etymologies involve cases where a borrowed place-name component refers to some easily verifiable quality of the designated geographic object. Some Saami words of this type are quite widely attested in the place-names of central and southern Finland, such as PSaa **jeaŋkē* ‘bog’, **vuoččō* ‘wet bog’, **vuonē* ‘long and narrow bay’, **kukkē(-s)* ‘long’, and **ēlē-* ‘upper’. An examination of the distribution of such names reveals how Lakeland Saami must have been spoken throughout southern Finland with the possible exception of some coastal areas (Saarikivi 2004b; Aikio 2007b). Naturally, also dozens of other Saami substrate elements can be identified in the place-names of the area.

Loanwords and place-names are our only source of information on Lakeland Saami. As such they reveal very little of the concrete features of these languages. We will never even know how many distinct Lakeland Saami languages there were, even though due to the size of the area there must have been several. However, we can still verify that Lakeland Saami had completed the same important Proto-Saami linguistic innovations as Lapland Saami further north. The forms of borrowed place-names testify of the effects of the Great Saami Vowel Shift. For example, the vowel development **a* > **ō* > **uo* can be seen in the lake names *Lumperoinen* and *Lummene* which derive from Proto-Saami **luompël* ‘lake along a river’ (T. Itkonen 1993); the word goes back Pre-Proto-Saami **lampil* and is cognate with Finnish *lampi* ‘pond, small lake’. This is corroborated by Saami loanwords in southern Finnish dialects that show the same development, such as *julku* ‘long pole, rod’ (< Proto-Saami **čuolkōj* < Proto-Uralic **šalkaw*), *nuoska* ‘thaw’ (< Proto-Saami **ñuockē* ‘wet’ < Proto-Uralic **ñački*), and *puoto* ‘dam’ (< Proto-Saami **puodō* ‘dam’ < Proto-Uralic **pado*) (Aikio 2009).

Also morphological idiosyncracies of Saami languages can be to some extent traced in the material. Lake names of the type *Kukasjärvi*, *Kukkasjärvi*, and *Kuukasjärvi* (< Proto-Saami **kukkē-s* ‘long’) show that also Lakeland Saami had attribute adjectives with the suffix *-s. Separate attribute forms of adjectives are a typological rarity, and the origin of the Saami attribute form suffix *-s is unclear. Also, Saami superlative suffixes can be identified in place-names: the lake names *Elimysjärvi* (< Proto-Saami **ēlē-mus* ‘uppermost’) and *Ilomantsinjärvi* (< Proto-Saami **ēlē-māñčē* ‘uppermost’) reflect two different Saami superlative formations of the spatial noun root **ēlē-* ‘up, high’ (Aikio 2003).

Thus, phonological and morphological criteria verify that the Lakeland Saami languages spoken by historical ‘Lapps’ were truly Saami, in the sense

that they go back to the same Proto-Saami language as the Saami languages in Lapland. M. Korhonen (1979) has proposed that Lakeland Saami languages derived from a distinct ‘Southern Proto-Saami’ language which had already earlier differentiated from ‘Northern Proto-Saami’, the ancestor of Lapland Saami languages. However, this conclusion is based on scarce evidence and speculative arguments which have been refuted by Sammallahti (1984: 147–148).

An interesting feature of the substrate place-names deriving from Lakeland Saami is that they attest many distinctively Saami words that are of unknown origin. The following place-name elements serve as examples (most of these etymologies are discussed in Aikio 2007c):

<i>Jokuu-</i>	< PSaa *čuokōs ‘track, way’ (SaaSk <i>čuâggas</i>)
<i>Juolu-</i>	< PSaa *čuolō ‘fence’ (SaaSk <i>čuâll</i>)
<i>Kaavi-</i>	< PSaa *kāvë ‘bend; small bay’ (SaaN <i>gávva</i>)
<i>Kiesimä-, Kiesimen-</i>	< PSaa *keasē-mē ‘pulling, dragging’ (SaaN <i>geassin</i>)
<i>Kinis-, Kenes-</i>	< PSaa *kēniš ‘gnome’ (SaaN <i>ganeš</i>)
<i>Kotko-, Kotkuu-</i>	< PSaa *kuotkōj ‘narrow cape, isthmus’ (SaaN <i>guotkku</i>)
<i>Kälkä-, Kelk-</i>	< PSaa *keadkē ‘stone, rock’ (SaaN <i>geadgi</i>)
<i>Köngän-</i>	< PSaa *keavņēs ‘big rapids’ (SaaN <i>geavņjis</i>)
<i>Lieksa</i>	< PSaa *leakšā ‘boggy area’ (SaaN <i>leakšá</i>)
<i>Liva-, Livo-, Livu-</i>	< PSaa *livē ‘rest (of reindeer)’ (SaaN <i>livva-</i>)
<i>Läänä</i>	< PSaa *lāñā ‘young birch; thicket’ (SaaN <i>lātnjá</i>)
<i>Moit-, Moitan-, Moijan-</i>	< PSaa *muojdē ‘hunt of wild reindeer in the winter’ (SaaI <i>myejđi</i>)
<i>Naakkima-</i>	< PSaa *nākē-mē ‘sneaking, stalking’ (SaaN <i>njáhkkan</i>)
<i>Paahta-, Pahdinki, Päht-</i>	< PSaa *pāktē ‘cliff, rock’ (SaaN <i>bákti</i>)
<i>Pouni-</i>	< PSaa *povně ‘tussock’ (SaaN <i>bovdna</i>)
<i>Rappaat-</i>	< PSaa *rāppēs ‘rough, rocky terrain’ (SaaN <i>ráhpes-</i>)
<i>Sapsa-, Sapsa-</i>	< PSaa *šāpšē ‘whitefish’ (SaaI <i>šapšā</i>)
<i>Siita-, Siitin-</i>	< PSaa *sijtē ‘winter village’ (SaaN <i>siida</i>)
<i>Suono-, Suoni-, Suonen-</i>	< PSaa *suonō ‘wet bog’ (SaaN <i>suotnju</i>)
<i>Tolva-</i>	< PSaa *toalvē ‘trot (of reindeer)’ (SaaN <i>doalvi</i>)
<i>Vermas-, Vermi-, Virma-</i>	< PSaa *viermē ‘fishing net’ (SaaN <i>fierbmi</i>)
<i>Visu-</i>	< PSaa *vēšō ‘thicket’ (SaaSk <i>vâšš</i>)
<i>Vuonamo-, Vuonos-, Vuonis-</i>	< PSaa *vuonē ‘long and narrow bay; fjord’ (SaaN <i>vuotna</i>)
<i>Vuonteen-</i>	< PSaa *vuontēs ‘sand’ (SaaI <i>vuodâs</i>)

Also several of the Saami loanwords in the Finnish dialects were adopted from Saami words of unknown origin, such as the following (a detailed discussion of these etymologies is presented in Aikio 2009):

<i>aaje</i> ‘spring; boghole’	< PSaa *ājĕk ‘spring’ (SaaN <i>ája</i>)
<i>junta</i> ‘row of fishing nets’	< PSaa *jontĕjō id. (SaaN <i>joddu</i>)
<i>kieppi</i> ‘snow hole; snow drift’	< PSaa *ĉieppĕ ‘snow hole’ (SaaN <i>ĉiehppa</i>)
<i>kontio</i> ‘bear’	< PSaa *kuomĉĕ ‘bear’ (SaaN <i>guovža</i>)
<i>kuusanka</i> ‘Siberian jay’	< PSaa *kuoksĕŋkĕ id. (SaaN <i>guovssat</i>)
<i>luppo</i> ‘lichen on trees’	< PSaa *lĕppō id. (SaaN <i>lahppu</i>)
<i>nuotio</i> ‘campfire’	< PSaa *ńuodšō id. (SaaN <i>njuoršu</i>)
<i>purnu</i> ‘cache for foodstuffs’	< PSaa *puornĕ id. (SaaI <i>puornā</i>)
<i>päläs</i> ‘place for foot on a ski’	< PSaa *peadĥĕs id. (SaaN <i>beadĥĥis</i>)
<i>sivakka</i> ‘ski’	< PSaa *sĕpĕkkĕ id. (SaaN <i>sabet</i>)
<i>suokko</i> ‘downy birch’	< PSaa *soakĕ ‘birch’ (SaaN <i>soahki</i>)
<i>viti</i> ‘new snow’	< PSaa *vĕĉĕ id. (SaaN <i>vahca</i>)

The Saami substrate in the Finnish dialects thus reveals that also Lakeland Saami languages had a large number of vocabulary items of obscure origin. Most likely many of these words were substrate in Lakeland Saami, too, and ultimately derive from languages spoken in the region before Saami. In some cases the loan origin of these words is obvious due to their secondary Proto-Saami vowel combinations such as *ā–ĕ in *kāvĕ ‘bend; small bay’ and *šāpšĕ ‘whitefish’. This substrate can be called ‘Palaeo-Lakelandic’, in contrast to the ‘Palaeo-Laplandic’ substrate that is prominent in the lexicon of Lapland Saami. As the Lakeland Saami languages became extinct and only fragments of their lexicon can be reconstructed via elements preserved in Finnish place-names and dialectal vocabulary, we are not in a position to actually study the features of this Palaeo-Lakelandic substrate. Its existence, however, appears evident from the material above.

While the former distribution of Lakeland Saami in Finland seems rather clear, it is much more difficult to determine its eastern boundaries. It appears, however, that Saami substrate place-names are attested throughout White Karelia (Kuzmin 2010) and also in the Veps territory in the Svir River basin (Mullonen 2002). Certainly they also occur in Olonets Karelia, which is left between these two areas, even though the issue has not been studied in much detail. It is particularly interesting that the Northeast Finnic name of Lake Onega (Olonetsian *länizjärvi*, Veps *Ānine*) seems to reflect Proto-Saami *eanĕ- ‘big’, which would appear to imply that the lake was outside the area the speakers of Proto-Finnic were originally acquainted with. Whether Saami languages had spread even east of Lake Onega remains less clear. Matveev (2001) has claimed that Saami substrate place-names are found in a very wide area in northern Russia, but the weak methodology he applies for distinguishing Saami from other Finno-Ugric place-names leaves serious doubts about the validity of his conclusions (Saarikivi 2002). Still, there are some possibly Saami place-name elements that are attested in several names in the Arkhangelsk region and in the area surrounding Lake Beloe, for example *Šid-* ~ *Šit-* (? < PSaa *sijtĕ ‘winter village’), *Šub-* (? < PSaa *supĕ ‘aspen’) and *Njuhĉ-* (? < PSaa *ńukĉĕ ‘swan’). On the whole, however, this material seems to be scarce and open to alternative interpretations (Saarikivi 2004b).

Whatever the exact prehistoric eastern boundary of Saami languages may be, it is still clear that in the early Middle Ages prior to the northward expansion of North Finnic tribes these languages were spread over a region covering nearly all of Finland, Karelia, and Lapland. This is an enormous territory with an area close to one million square kilometers. Nevertheless, the degree of linguistic divergence within this area was not very deep. As was shown in section 4 above, the first dialect boundaries within Lapland Saami seem to have emerged during the Proto-Scandinavian period 200–700 AD. While Lakeland Saami languages may have shown a somewhat deeper divergence from their sister languages in Lapland, the substrate place-names adopted from them show that they, too, had participated in major Proto-Saami innovations such as the Great Saami Vowel Shift.

All this suggests that the Medieval Saami territory was a result of a large-scale linguistic expansion from a geographically limited core area somewhere in southern Finland or Karelia. The more exact location of this core area remains unclear. Häkkinen (2010b) argues that it would have been located even further from Lapland – south of Lakes Ladoga and Onega, between the Karelian Isthmus in the west and Lake Beloe in the east. His arguments on this point are, however, rather impressionistic and the idea is only partly congruent with onomastic evidence. While there are Saami substrate place-names in the Svir River basin and possibly even in the Lake Beloe region, no reliable examples are known south of Lake Ladoga or even the Karelian Isthmus. They do, however, occur immediately north of the isthmus. In the archipelago of northwestern Ladoga, for example, there is a large island of oblong shape with the name *Kuhkaa*, which certainly reflects PSaa *kukkē-s ‘long’. Incidentally, this name also shows that the Lakeland Saami language in the region had developed preaspiration of geminate stops (*kk > *hk) like most Lapland Saami languages, too.

The exact dating of the expansion of Proto-Saami is likewise difficult, but some definite temporal limits can be established. As argued by Bergsland (1996) and Heikkilä (2011), the *terminus ante quem* for the spread of Saami to central Scandinavia is 500–600 AD. On the other hand, the Great Saami Vowel Shift seems to have occurred sometime in the Early Iron Age, to judge from the fact that the word *ruovdi* ‘iron’ has participated in it. This word goes back to Pre-Proto-Saami *ravta (cf. Fi *rauta* ‘iron’) and was adopted from Proto-Germanic *raudan (> ON *rauði* ‘bog iron ore’). On the basis of detailed analysis of loanword evidence, Heikkilä (2011: 74) has dated the Pre-Proto-Saami change *a > *ō (> *uo) to the last centuries BC. If this is correct, we have a time frame of roughly 800 years during which the expansion and consequent dialectal disintegration of Proto-Saami must have taken place.

Not all will probably accept this reasoning. Many scholars of Uralic prehistory have maintained that proto-languages could have been spoken over vast areas for centuries or even millennia before their disintegration, and I have also myself initially subscribed to this view (Aikio 2000). Such an idea defies common sense, however. Proto-languages have also been natural languages spoken in natural speech communities, and we obviously need no particular proof for the claim that a network of Iron Age hunter-gatherers spread over an area of one

million square kilometers could not have formed a single speech community. The idea that a single language could have been spoken from southern Finland to the Arctic Coast of Norway and from central Scandinavia to Lake Onega is simply not realistic. At the largest, the geographic extent of hunter-gatherer languages has been about a third of this, as in the case of the Chipewyan who inhabited an area roughly the size of Finland in the Canadian Arctic. It is worth bearing in mind, however, that the traditional territories occupied by most North American native groups were considerably smaller. Moreover, the historical Saami territory is for the most part not arctic but subarctic boreal forest fragmented by innumerable lakes, rivers, and marshlands; in such areas speech communities tend to be more densely spread. Hence, the diversification of Proto-Saami to a large number of local Saami languages must be interpreted as a consequence of a linguistic expansion, which spread the language to this huge region over which a coherent communication network could no longer be maintained.

The historical Saami area was probably more diverse in terms of culture and livelihoods than in terms of language. Finnish oral tradition gathered mainly in the 19th century provides a rich source of information for the reconstruction of Lakeland Saami culture. The Lakeland Saami can mostly be characterized as hunter-gatherers whose primary means of subsistence were fishing and hunting, especially of wild reindeer; thus, they seem to have resembled the recently vanished Forest Saami cultures in the woodlands of Lapland (cf. Tegengren 1952). Interestingly, however, in parts of southern Finland, such as in Tavastia, there is also evidence of slash-and-burn agriculture as a subsidiary livelihood of the Saami (Salo 2000); as the Lapland Saami have not practiced agriculture, such historical data have usually not attracted the attention they deserve. Yet different types of subsistence patterns have probably occurred among the Saami on the coasts of the Gulf of Bothnia, where archaeological material reveals the major significance of sealing (Broadbent 2010). It is worth noting that the northern half of the Gulf of Bothnia seems to have been a Saami sea before the expansion of the Finns and to a lesser extent the Scandinavians along the Bothnian coasts in the Viking Age.

This brings us to questions of prehistoric ethnicity. As there appear to have been major differences in subsistence patterns and culture between the various historical Saami groups, we can hardly assume these groups to have shared a common ethnic identity either. It seems unlikely, for example, that Early Medieval hunters and fur traders of the Scandinavian Mountains would have felt they had very much in common with slash-and-burn farmers in the woods of Tavastia, even if they spoke closely related languages. Even during recent history the North Saami and the Skolt Saami, for example, do not seem to have considered themselves members of the same ethnic group; the emergence of a common 'pan-Saami' identity is, of course, a rather new development connected with the emancipation of indigenous peoples. Hence, in the Iron Age and the Middle Ages the 'Saami', as a linguistic group, have formed a heterogeneous network of communities that greatly differed from each other in terms of subsistence strategy, culture, and likely also ethnic identification. Interestingly, though, these

groups shared the same endonym that was inherited from Proto-Saami *sāmē ‘Saami’; this is remarkable in itself, as ethnonyms tend to be historically unstable and only very rarely can be reconstructed to proto-languages of any time depth. Nevertheless, it does not imply that all groups calling themselves *sāmē would have had a common ethnic identity.

Considering this, it actually makes some sense that Huurre (1979: 151–154) has questioned whether the historical ‘Lapps’ in the Finnish Lakeland can be connected with Lapland Saami. If we approach the question from the perspective of culture and ethnic identity this is indeed far from clear. What is clear, however, is that the ‘Lapps’ were not ethnic Finns who had chosen a hunter-gatherer subsistence pattern, even though this possibility is raised by Huurre. One simply cannot ignore the pervasive expression of otherness that surrounds the ‘Lapps’ in Finnish oral tradition: the Lapps are consistently described as a strange group with a different way of life, and they are also mentioned to speak a distinct ‘Lapp’ language. Also the folk-etymological interpretation that opaque place-names are remnants of this language is commonly attested. Occasionally ‘Lapps’ are even portrayed as dangerous, especially due to their alleged powers in magic.

It is also problematic that neither Huurre nor others who have cast doubt on the ‘Saaminess’ of historical Lapps have defined what exactly they mean by ‘Saami’ in a historical context. While we can speculate on the ethnicity of past populations, it is still clear that these historical Saami societies formed a single linguistic network which was clearly delimited to societies belonging to other, linguistically radically different networks – the Scandinavians and the North Finnic tribes. As scholars we need a label for the societies belonging to this network, and it is difficult to see what else this label could be than ‘Saami’.

However heterogeneous the network of early Saami societies may have been, its fate was to shrink dramatically due to the expansion of North Finnic tribes to what is now Finland and Karelia. The penetration of Finns into Saami territory seems to have begun already in the Roman Iron Age. Salo (2000) has thoroughly analyzed the settlement history of southwestern Finland on the basis of evidence from archaeology, history, oral tradition, and onomastics, and has come to the conclusion that an early Finnic-speaking settlement on the coast of Finland Proper and Satakunta started to expand inland along the Kokemäenjoki River in 300–600 AD. In its early stages, however, this expansion only came to cover the core areas of Tavastia, thus forming the prerequisite for the later deep dialectal divergence between Southwestern and Tavastian dialects of Finnish. The southwestern coast and prehistoric Tavastia were separated by a stretch of wooded hinterland that remained sparsely populated for centuries. Against this context we can also understand why *Häme*, the Finnish name of Tavastia, and the corresponding tribal name *hämäläinen* are etymologically identical with the Saami endonym *sāmē. Salo presents the plausible hypothesis that also the Finnish names originally referred to the Saami, but their denotation was transferred to the Finnish Tavastians during the Finnicization of the area.

Here we can make a brief transgression to the prehistory of the Finns. Unlike Tavastia, the Finnic settlement on the southwestern coast is considered age-old by Salo (2000), going back to the Stone Age. Numerous other scholars have also advocated a Finnic linguistic continuity in southwestern Finland since the Bronze Age or the Stone Age, and this view is the cornerstone of the so-called ‘continuity theory’ of Finnish origins that was especially popular in the 1980s and 1990s (see Aikio & Aikio 2001 for discussion). The idea is, however, puzzling because it appears quite clear that Finnic languages were widely spread south of the Gulf of Finland in the Middle Iron Age when the Finnic-speaking area in southwestern Finland was still a small and isolated outlier bordered by the Baltic Sea on one side and the Lakeland inhabited by Saami speakers on the other. To overcome this problem it has been repeatedly suggested that the sea ‘connected’ or ‘united’ southwestern Finland with the Finnic core area further south (e.g., Sammallahti 1984: 142; Carpelan & Parpola 2001: 91–92; Häkkinen 2011b: 58). It is, however, difficult to understand how the Gulf of Finland could have served as a linguistically unifying factor in prehistoric times as it has been the opposite in historical times, despite the constant progress in seafaring technology. In general, it ought to be self-evident that major geographic obstacles such as gulfs promote linguistic divergence and not convergence. Notably, this conclusion is now also endorsed by Parpola (this volume).

On the other hand, Kallio (2006: 18–19) suggests that the Proto-Finnic speaking area could have surrounded the entire Gulf of Finland, which would eliminate the geographic discontinuity. Here he, like also Carpelan and Parpola (2001: 91–92), makes reference to T. Itkonen’s (1984) model of Proto-Finnic dialects around the Gulf. However, this theory is difficult to combine with the relatively recent origin of the Finnish settlement in the Nyland region. This is evident in the region’s dialectology, which features a combination of Southwestern and Tavastian strata and in the eastern part also Karelian influence (T. Itkonen 1992). There is some historical evidence of earlier Saami inhabitants of Nyland (Voionmaa 1943), and on the borders of western Nyland and Finland Proper, clear cases of Saami substrate place-names also are found. Examples include the hill *Elimäki* in Vihti (< PSaa **ēlē* ‘high’),¹³ the lake *Elimoträsket* in Pohja (< PSaa **ēlēmus* ‘uppermost’), the hill *Siitoinmäki* in Nummi and the rock *Siitinvaha* in Kisko (< PSaa **siejtē* ‘rock idol’), and the river *Moitanoja* in Kuusjoki (< PSaa **muojdē* ‘hunt of wild reindeer in winter’) (Aikio 2007c: 191). Probably in Nyland there was Saami settlement on the coast of the Gulf of Finland, which was only later displaced by Finns expanding from Tavastia and Finland Proper, and also Swedes settling along the coast.

Despite the early expansion of the Finns into Tavastia, it was not until the Early Middle Ages that the expanding Finnish and Karelian settlement started to exert wide pressure on the Lakeland Saami habitation throughout southern Finland. In Finnish historiography it is common in this connection to speak of ‘the formation of settlement’ (Finn. “*asutuksen synty*”), which entails the misleading connotation that Finland was *terra nullius* before the arrival of the Finns. While

there seems to have been a remarkable reluctance among scholars to admit that the Saami had already settled the area and did not just wander around aimlessly, the reality is of course that these lands were appropriated from the Lakeland Saami. The primarily hunter-gatherer Saami were outnumbered, and their fate was to become assimilated to the expanding Finno-Karelian population (cf. Julku 1992), although in some places they likely were driven out of their former lands or even perished in violent conflicts. In parts of Savo, Kainuu, and Ostrobothnia, the Finno-Karelian expansion continued until the Early Modern Age, and in Lapland to the present day.

As a result, Lakeland Saami languages became extinct and only traces of them can be detected in place-names and loanwords in their former speaking areas. What was preserved of the once very wide Saami territory was its northwestern periphery, where Saami languages survived – although barely – in their strongly transformed Laplandic form. The history of Saami languages is not unlike that of the Celtic languages, which initially expanded to a very wide area in continental Europe, but survived until modern times only in the peripheries – in Brittany and on the British Isles. As the eventual fall of Lakeland Saami and the marginalization of Lapland Saami are largely known history, we need not go into further details of this story here.

7. On the correlation of linguistic and archaeological findings

The prehistoric linguistic processes examined above raise the question whether some of the reconstructed sociolinguistic events could be correlated with the archaeological record. Of course, the pursuit of such a synthesis of Saami ethnolinguistic prehistory is a much more hypothetical undertaking than the linguistic analyses presented in the previous sections, as there is little agreement on methodological questions and theoretical foundations of linguistic-archaeological correlations. Thus, it is necessary to leave the specific details of Saami prehistory aside for a moment and to briefly examine some general questions regarding the possibilities and limits of such an approach.

During recent decades the possibilities of making linguistic and ethnic interpretations of archaeological results has received much attention in studies on Uralic prehistory. Even though there is a large body of publications on these topics, it must be said that the theoretical apparatus on which much of this research is based involves some notable problems. A thorough discussion on the methodological difficulties in the field is provided by Saarikivi and Lavento (2012), who conclude that the traditional approaches to the correlation of archaeological and linguistic results are based on many ambiguous assumptions. Indeed, it is possible to discern several erroneous theoretical premises that seem to be prevalent in Uralic ethnohistorical research. The reason why the fallacy of these premises has often remained unidentified is that the premises themselves are rarely even

explicitly stated, let alone critically discussed. One can draw attention to four types of dubious assumptions, which often seem to lie behind theories of Saami ethnic history.

- 1) *The nonuniformitarian fallacy*: prehistoric conditions are postulated, which seem to differ in some principal way from those attested in historical times.
- 2) *The anachronistic fallacy*: evidence deriving from a particular prehistoric period is used for drawing conclusions regarding another period.
- 3) *The category mistake fallacy*: incompatible concepts deriving from different disciplines are compared against each other.
- 4) *The ad ignorantiam fallacy*: the fragmentary nature of the evidence of prehistory is not properly taken into account.

Each of these fallacies in the theoretical apparatus can be illustrated with some examples. Regarding the nonuniformitarian fallacy, by far the most widespread argument of this type is the frequent postulation of very large “homelands” or speaking-areas of proto-languages, which was already touched upon in the previous section. One example is the popular idea that Proto-Uralic would have been spoken throughout the vast area defined by the spread of Comb Ware in Northeastern Europe since 4200 BC (e.g., Carpelan & Parpola 2001: 82; note that Parpola (this volume) has changed his view on the issue). The problem is that there is nothing in the historical or ethnographic record that would serve as a parallel to the existence of prehistoric hunter-gatherer speech communities of such size. Instead, cultural areas with a low degree of social organization are typically characterized by great linguistic diversity, and hence one can assume that a large number of distinct languages have been spoken in Northeastern Europe at any given time in prehistory.

Apparently, hypotheses of vast “homelands” are in part motivated by the second type of fallacious argument, namely anachronistic correlations between archaeological and linguistic results. The historical record shows that language spread and language divergence are either simultaneous phenomena or, in the case of a rapid geographical relocation or spread of a speech community, the latter at least very quickly follows the former. As an example of rapid relocation, the Comanche emerged as a distinct group when they broke off from Shoshoni tribes in present-day Wyoming and moved south, acquiring horses and adopting a Plains type of culture in the late 17th century (Hämäläinen 2008). Today Shoshoni and Comanche are distinct languages (Charney 1993: 2), even though still partially mutually intelligible (McLaughlin 2000). A rapid spread occurred in the case of the Cree languages, which are now spoken in Canada along a dialect continuum over 4000 kilometres wide. This wide territory arose as a result of an expansion since the 18th century, which was triggered by the Cree becoming incorporated into the fur trade institution and thus acquiring firearms and advanced trapping technology from Europeans (Ray 1996: 278–280). As a result, Cree has developed into a diverse dialect continuum with considerable (but not full) mutual intelligibility between its varieties (Wolfart 1997: 390).

Thus, if archaeological and linguistic results are to be meaningfully combined, reconstructed periods of linguistic divergence ought to be paired with archaeological phenomena that either were simultaneous with or immediately preceded the divergence. It is meaningless, however, to compare archaeological waves of influence with patterns of language divergence that must have taken place thousands of years later. For essentially this reason, the association between Comb Ware and Proto-Uralic has been recently rejected by Kallio (2006). As another example of such anachronistic comparisons one can mention how the various ancestral forms of Saami are linked to different archaeological horizons by Carpelan (2003; 2006). In his view, the differentiation of the Finnic and Saami language branches began by the introduction of the Battle Axe culture to southwestern Finland in 3200 BC, as the emerging Saami community was left outside its sphere of influence. The later spread of Lovozero Ware in Lapland in the beginning of the Bronze Age (1900– BC), then, would indicate that small communities speaking ‘an early Proto-Saami language’ moved to Lapland, mixing with the original population, and ‘a fully Proto-Saami cultural expression’ would eventually have been created by the emergence of Kjelmøy Ware in the archaeological record in the beginning of the Iron Age (700– BC) (Carpelan 2006: 87). While the connection of Kjelmøy Ware to Saami might just be within the limits of possibility, the dating of the differentiation of Finnic and Saami to the Stone Age and postulation of Saami-speaking groups in the Early Bronze Age completely contradicts the linguistic chronology of Saami established by comparative linguistic methods. We shall return to the question of Kjelmøy Ware below.

There is, however, yet a deeper problem involved in most of the linguistic-archaeological comparisons made in the field of Uralic prehistory. It is rather obvious that ideas of vast prehistoric speech communities have also been inspired by the premise that there is some sort of direct correlation between archaeological horizons, cultures, languages, and ethnic groups. As archaeologically definable ceramic types are often distributed over wide areas, this has given an impetus to see these ceramic types as ethnic emblems of some widely spread language community. This hypothesis is heavily criticized by Saarikivi and Lavento (2012), and it is indeed easy to see the category mistake involved. As an archaeologically defined area (i.e. an ‘archaeological culture’), a culture, a language, and an ethnic group are simply not the same kind of entity, there is no reason to assume that they should correspond to each other in some simple manner. However, as this idea has nevertheless been so prevalent in the field of Uralic prehistory, it is necessary to scrutinize it in more detail.

First, it must be noted that this premise has usually been merely implicit in studies on Uralic ethnic history: while it is assumed that archaeological, linguistic, and ethnic boundaries match, rarely if ever this theoretical assumption is explicitly mentioned. This is evident, for instance, in Carpelan (2006) where the concepts of archaeological, linguistic, and ethnic boundaries are used almost interchangeably. In another paper, Carpelan justifies this kind of approach as follows:

“It has been a matter of dispute whether a human group represented by an archaeological culture has spoken a single language. One easily asks why should an archaeological entirety defined by a typology of artefacts represent linguistic unity. However, it would be more consistent to ask why people carrying a culture defined by the same factor of identity, who have lived in constant contact with each other, would *not* have spoken the same language? While one can take as a starting point a situation in which the carriers of the same archaeological culture have a common form of speech, it is possible that within the boundaries of an archaeological culture also bilingualism has existed, at least temporarily. Especially a population movement may have had the effect that a local community or a part of it would have acquired an archaeological cultural image represented by the immigrated population. One also has to take into account the possibility that the speakers of one language had differentiated to become carriers of separate archaeological cultures.” (Carpelan 2008: 316; translated from Finnish.)

It is noteworthy that while Carpelan considers bilingualism within one archaeological culture a valid possibility, this is still viewed as an exceptional circumstance, and normally a group of people sharing some important features of material culture should share one language. The validity of this assertion can easily be tested by examining whether historically known multilingual areas also show corresponding cultural diversity.

To cite a simple example involving just two languages, one can consider the case of Takia and Waskia spoken on Karkar Island off the northeastern coast of Papua. These languages are not genetically related: Takia is Austronesian and Waskia belongs to the Papuan Madang family. Even so, Takia and Waskia cultures have been described as practically identical; according to McSwain (1977: 3), the Takia and the Waskia “represent a single fairly homogeneous socio-cultural system.” Notably, though, there has been structural convergence of the languages to the extent that the originally Austronesian grammar of Takia has become radically remodeled on the basis of Waskia (Ross 2001).

There are numerous similar examples from all over the world of a highly similar culture being shared by speakers of distinct and even unrelated languages. For instance, among the Puebloan Indian peoples of the American Southwest, in an area a few hundred kilometers across, languages belonging to four different families are spoken: Hopi (Uto-Aztecan); Tewa, Tiwa, and Towa (Kiowa-Tanoan); Eastern and Western Keres dialects (an isolate dialect continuum); and Zuni (a language isolate). All these groups share the fairly homogeneous Puebloan cultural complex. While there naturally also are notable cultural differences between various Puebloan groups, these do not correspond to language family boundaries in a simple manner (Kirchhoff 1954), and the connection of the various languages with prehistoric Puebloan cultural subgroups is in many cases unclear (Hale & Harris 1979).

As yet another case one can consider California, which is known for its very high diversity of native American languages. An illuminating example of how this linguistic diversity is not matched with corresponding cultural

heterogeneity is provided by three neighboring tribes in Northern California: Hupa, Yurok, and Karuk culture has been described in all respects as essentially identical (Sapir 1921: 214; Kroeber 1925: 5; Gifford & Block 1930: 16; Bright & Bright 1965: 249; Drucker 1965: 176). Nevertheless, the languages spoken by these peoples are not even genetically related: Hupa is Athabaskan, Yurok is Algic, and Karuk is an isolate, although sometimes assigned to the speculative Hokan family.

It is thus evident that cultural and linguistic boundaries often do not match. As this is so, one certainly cannot expect the boundaries of prehistoric 'archaeological cultures' to show simple matches with linguistic boundaries either. This has often been noted by comparative linguists working on the prehistory of language families other than Uralic: e.g., Peiros (1997: 88) notes in his discussion of Australian linguistic prehistory that "there are many examples where several communities have very similar or even identical [cultural] complexes." However, during recent decades many scholars working on Uralic prehistory have engaged in futile debates over which archaeological cultures should be matched with which reconstructed languages. The debated hypotheses are based on a premise that is, in light of historical and ethnographic records, completely erroneous. While some of the purported linguistic-archaeological correlations may of course be valid, in most cases we simply have no method of determining whether this really is so.¹⁴

There is yet a fourth method of reasoning that contributes to questionable associations between 'archaeological cultures' and linguistic or ethnic groups. It is evident that the proto-languages reconstructed by linguists represent only a fraction of the languages that actually existed in the past. As glottogenesis is a result of linguistic differentiation, the further back in time we proceed with our reconstructions the less languages we end up reconstructing; but it is surely not the case that the number of languages in the world has dramatically increased during the last couple of millennia. The inescapable conclusion is that an overwhelming majority of languages that were spoken in the world a few thousand years ago have gone extinct. Despite this, the possibility of unknown languages is often ignored when ethnic interpretations of archaeological material are suggested. Among other things, this leads to false dilemmas, as in the disagreement between Baudou (2004) and Zachrisson (2004) on whether the Iron Age cultures in inland central Scandinavia were 'Scandinavian' or 'Saami'. In a more objective approach to the question one would also need to seriously consider the possibility that they were neither.

What consequences, then, does all this have to the interpretation of Saami ethnic history? An important implication is that we should stop asking questions such as whether this or that type of ceramics was "Saami" or not. Many theories of Uralic and Saami ethnic history have been based on the association of a particular ceramics type with a reconstructed proto-language, such as Comb Ware with Proto-Uralic. From such a starting hypothesis, then, the historically known distributions of languages are derived via a complex chain of subsequent

correlations between languages and archaeological areas (e.g., Carpelan & Parpola 2001). Such an approach involves two serious problems. First, it does not appear to be possible to reverse the chain of reasoning and derive the chosen starting hypothesis from known historical, archaeological, and linguistic facts. Second, there is no evidence for the view that prehistoric language borders even correspond to boundaries of archaeological areas in the first place. Thus, it is necessary to reject all theories of Saami prehistory and ethnogenesis based on this type of argumentation.

When the incompatibility of archaeological and linguistic areas is correctly admitted, the task of reconstructing past ethnic developments reveals itself as extraordinarily difficult. For each linguistic and archaeological result one must then ask whether it is even possible to correlate it with anything established within the other discipline. There is essentially no direct link between the research objects of historical linguistics and archaeology (e.g., between proto-languages and ceramics). While the same prehistoric people have certainly used both languages and ceramics, these two entities are not bound by same rules of social conduct.

In practice the situation is not hopeless, though. As proposed by Saarikivi and Lavento (2012), we can attempt a sociolinguistic reconstruction as an intermediate step, and then see whether this reconstruction could be compared to social interpretations of archaeological data. The problem is, however, that our methodological framework for conducting anything of the like in practice is still seriously underdeveloped: there is a need for a theoretical synthesis of historical linguistics and sociolinguistics, but steps towards such a synthesis have only started to be taken during recent decades. This means that we are still not in a much better position than applying rules of thumb when postulating hypotheses on prehistoric sociolinguistic processes.

8. Saami ethnolinguistic prehistory: what, where, and when?

We can now return to the findings of comparative linguistics about the history of Saami languages. The topics we have addressed above include the nature of the linguistic relationship between Saami and Finnic; the contacts of Pre-Proto-Saami with Pre-Proto-Finnic, Germanic, and Baltic languages; the contacts between Proto-Saami and Proto-Scandinavian; the substrate influence of extinct and unknown languages on Saami; and the substrate influence of Saami on North Finnic languages. The interpretation of the results allows us to distinguish between five major phases in the evolution of the Saami languages:

1. *The emergent phase* during which Pre-Proto-Saami emerged as a distinct language from the Finno-Saamic dialect continuum.
2. *The transformative phase* during which major linguistic innovations transformed the language into Proto-Saami.

3. *The dispersal phase* during which the Proto-Saami language broke up and early forms of Saami spread over a vast area comprising the Finnish and Karelian Lakeland as well as Lapland.
4. *The diversification phase* during which the Saami dialect continuum diverged into many local Saami languages spoken in Lapland and the Lakeland.
5. *The marginalization phase* in medieval and early modern times, during which Lakeland Saami languages became extinct due to the spread of Finnish and Karelian.

The very different linguistic processes that have taken place during these phases imply that the underlying social reality also must have radically changed from one period to the other. The major challenge of Saami ethnolinguistic prehistory is to reconstruct the sequence of social processes that account for this linguistic chronology, and to place these prehistoric developments in space and time.

It goes without saying that our knowledge of the extralinguistic reality of the early phases in the development of Saami is extremely limited. We know that as Pre-Proto-Saami emerged as a distinct dialect or language spoken in its own speech community, its speakers were in direct contact with Pre-Proto-Finnic and Germanic-speaking groups, as well as in sporadic or indirect contact with Baltic speakers. An exact geographic interpretation of these findings is difficult, however.

The most probable option would seem to be to assume that Pre-Proto-Saami was spoken somewhere in the Lakeland of southern Finland and Karelia, as this would allow us to explain the adoption of Germanic loanwords (Aikio 2006: 42; Kallio 2009: 38). It has been often suggested that there is a connection between the adoption of Proto-Germanic loanwords to Finnic and Saami and the influence of the Nordic Bronze Age culture on coastal Finland and Estonia in 1700–500 BC (see, e.g., Carpelan & Parpola 2001: 91–92); there appears to be no other plausible archaeological correlate for this phenomenon. Saarikivi (2004b) and Häkkinen (2010b) argue for a more eastern origin in the direction of Lake Onega and Lake Beloe, but it is not clear how the Germanic loanword strata should be accounted for in such a scenario. As Saami languages, in any case, spread via a large-scale linguistic expansion, we cannot *a priori* disregard the possibility that they spread not only from south to north but also from west to east. In any case, we can hardly assume that the speaking area of Pre-Proto-Saami covered the entire Lakeland from Tavastia to Lake Onega, as such a territory is too wide to remain linguistically uniform; such a spread would probably have prevented the uniform completion of the transformative phase which resulted in the birth of the Proto-Saami language (contrary to what is maintained by Kallio 2009: 38). Moreover, such a hypothesis would make it difficult to explain the later adoption of a Palaeo-Lakelandic substrate in Proto-Saami (see section 6).

These are all educated guesses, and more research is needed before definite answers can be given to where the emergent phase and the transformative phase of Saami language history took place. Moreover, it should be admitted that we

have no knowledge at all about the beginning of the emergent phase – the questions where and why the Pre-Proto-Saami and Pre-Proto-Finnic languages first diverged from each other cannot be answered in light of present research. Despite this, there is no shortage of theories in this regard. To mention a particularly widespread view, it has often been thought that a Finno-Saamic proto-language was spoken in the Comb Ware archaeological culture in southern Finland, and that the Finnic and Saami language branches became separated due to the spread of the Northwest Indo-European-speaking Corded Ware (Battle Axe) culture to the southwestern part of the area in about 3200 BC (see, e.g., Carpelan & Parpola 2001: 83–84; but Parpola (this volume) no longer supports the theory).

It must be said that this popular scenario, while superficially appealing, belongs more to the realm of speculation than to solidly argued theory. On the basis of the discussion above, one can point out that there is no clear evidence for views such as 1) that there ever was a distinct Finno-Saamic proto-language; 2) that the differentiation of Pre-Proto-Finnic and Pre-Proto-Saami could have taken place as early as 5000 years ago; 3) that the Comb Ware culture in Finland was Uralic-speaking; 4) that widespread archaeological horizons such as Comb Ware ‘culture’ and the Corded Ware ‘culture’ even correspond to language families; and 5) that Finnic was spoken in Finland before the Iron Age. Moreover, it can be asked whether the reconstruction of Stone Age ethnolinguistic processes in Northern Europe is a realistic endeavor in the present state of research, as our knowledge of such processes even in the Iron Age is still very limited. The problem in Stone Age ethnolinguistics is that there is a lot of blank canvas to paint on and only very little evidence to restrict our imagination. Those with a critical mind-set, however, must ponder whether we can at present establish anything regarding ethnicity at such time depths.

It makes sense to turn the attention to questions of more recent prehistoric ethnolinguistic processes, as they, too, pose many unsolved problems. When searching for an archaeological correlate for the disintegration and spread of Proto-Saami, we are on a much more solid foundation, as there is precise temporal and geographic information on the outcome of this process: the Saami linguistic expansion must have reached the South Saami territory in central Scandinavia by 500 AD, and according to Heikkilä’s (2011) datings of Proto-Saami sound changes, the expansion cannot have started before the last centuries BC. Therefore, we have a definite timeframe of about 800 years in which we can seek archaeological correlates for the process.

It has been independently noted by Heikkilä (2011: 75–76) and Häkkinen (2010b: 61) that there is, indeed, a surprising correlate to the expansion of Saami in the archaeological record of Lapland. The period between 250–800 AD in Lapland is characterized by ‘archaeological invisibility’: the production of iron and ceramics ceased, and finds from this period are scarce and scattered. Metal objects associated with this period are imported. In Carpelan’s words, “no recognizable type of archaeological relic seems to be characteristic for the Middle Iron Age of the northern and eastern cultural sphere. No distinctive feature is

known that would reveal how the people lived and behaved after the end of Early Metal Age.” (Carpelan 2003: 60–61; translated from Finnish).

On the basis of the linguistic chronology we know that this is precisely the period when Saami languages spread to Lapland and pushed the Palaeo-Laplandic languages to extinction. At the same time, the emerging Saami societies in Scandinavia became – it seems – suppliers and purveyors in a fur trade network operated by speakers of Proto-Scandinavian. It might seem paradoxical that such a dramatic change in the social, economic, and ethnic structure of society is not expressed in the archaeological record by an influx of new types of finds. Nevertheless, it is expressed as a radical *change*, even if the result of this change is the lack of archaeological evidence. Carpelan has pointed out that the cause and meaning of this change is not well understood (2003: 87); but as noted by Häkkinen (2010b: 61), his own cautiously articulated assumptions regarding the nature of the period would seem to fit very well to the scenario outlined above:

“[After the beginning of the Common Era] begins the utilization of wilderness areas that originated in the peasant cultural context of Finland, Sweden, and Norway; the inhabitants of the wilderness, the Proto-Saami, who belonged to the eastern hunter-gatherer cultural sphere, begin to be used as purveyors and later also as taxpayers. (...) Soon after the beginning of this wave of influence the production of iron and ceramics ceases in the eastern cultural sphere. I assume that Saami culture then began to transform into some kind of purveyor culture of wilderness products and, at the same time, gave up certain activities which had been characteristic of it when it still had led a self-sufficient life without a notable need for surplus production.” (Carpelan 1984: 105; translated from Finnish.)

The current linguistic findings clearly point to the conclusion that this is the crucial turning point when Saami ethnicities have formed in Lapland. Viable alternatives seem to be difficult to find. I have cautiously suggested the spread of Kjelmøy Ware in Lapland since the 7th century BC as a potential correlate of the expansion of Saami (Aikio 2004: 30), but its dating appears to be too early to combine with the linguistic chronology. Moreover, this proposal suffers from the general implausibility of associating spreads of ceramics types with the speaking areas of languages. Thus, it appears reasonably clear that the ethnogenesis of the Saami in Lapland is instead connected with the archaeologically ‘silent’ period in the Middle Iron Age.

This finding raises many new questions. We can envision language shifts and trade networks, but it still remains entirely unclear what the actual causes and social mechanisms of the expansion of Saami languages were. Such questions have been scarcely touched upon in research so far. It has occasionally been suggested that the northward spread of Saami resulted from the push effect of the North Finnic expansion (Janhunen 2005: 85–86), but this idea must be rejected as chronologically impossible; the spread of North Finnic to the Lakeland is simply too late to account for the spread of Saami to Lapland. More

plausibly one can hypothesize that the rise of the fur trade would have served as a push factor; this would imply that the original speaking area of Proto-Saami was located in some kind of key position in relation to emerging Germanic trade networks. Such a hypothesis is attractive, as it entails a causal link between the presence of extensive Germanic loanword strata in Proto-Saami and the later expansion of the language itself. Other possibilities, however, can certainly also be found. What happened in Lapland in the Middle Iron Age is an enigma of Saami prehistory, and no coherent theory of Saami ethnogenesis can be put forth before we gain an understanding of the nature of this period. Collaborative research on the topic by linguists and archaeologists is now needed.

As the development of the Saami languages after their disintegration approaches the border of history, we need not go to the details of that process here. In the Late Iron Age from 800 AD onwards so-called rectangular stone settings emerge in the archaeological record of Lapland. According to several archaeologists (e.g., Carpelan 2003; Halinen 2011), these are the earliest finds that can with complete certainty be associated with the Saami. This appears obvious from a linguistic perspective as well, as Palaeo-Laplandic substrate languages can hardly be assumed to have survived to this period, and the divergence of the Saami languages must already have been well on its way. From rectangular stone settings the continuity to more recent historical periods is evident (see, e.g., Carpelan 2003). However, the actual linguistic divergence of the Saami languages is not reflected in the archaeological material in a straightforward way. For example, in the archaeological record of the Inari region one can observe how sites characterized by the same assemblage have given rise to Inari Saami communities on the one hand and Skolt Saami communities on the other (Saarikivi & Lavento 2012: 203–204).

Finally, it is in order to note what the present results do *not* imply. What has been presented above is a chronology of the linguistic development of Saami, and the origins of Saami cultures or the genetic origin of the Saami people are altogether different topics which could not be addressed in detail here. When speaking of ethnic history, it must be remembered that ethnogenesis is a process that involves linguistic, cultural and demographic factors. While Saami languages can be shown to have come to Lapland from the south, the Saami as ethnic groups did not “come” from anywhere – they were formed in their present territories through a complex social process that involved the adoption of a new language. The earlier speakers of ‘Palaeo-Laplandic’ languages belong to the cultural and genetic ancestors of the Saami even if they were not their linguistic ancestors. Thus, the prehistory of Lapland and the prehistory of Saami languages are two very different histories indeed.

Endnotes

- * I am obliged to Laura Arola for critical discussions on the topic of this essay.
1. In the traditional Uralic reconstruction, long vowels (*ī, *ē, *ō and *ū) also have been postulated for West Uralic. It is, however, demonstrated in Aikio (2012) that these long vowels are a specifically Finnic innovation, and cannot be reconstructed for the proto-stages of other Uralic languages.
 2. SaaN *bievla* ‘snowless patch’, *duollji* ‘hide’, *duovli* ‘tinder’, *faggi* ‘hook’, *giehka* ‘cuckoo’, *gahpir* ‘cap’, *giehpa* ‘soot’, *gohččut* ‘call, order’, *guoibmi* ‘companion, spouse’, *guovllas* ‘wooden collar’, *jávri* ‘lake’, *johtit* ‘move, travel, migrate’, *leaibi* ‘alder’, *loggemuorra* ‘tree that splits along its annual rings’, *luokta* ‘bay’, *luossa* ‘salmon’, *luovdi* ‘net float’, *luovvi* ‘storage platform’, *riessat* ‘fringe a scarf’, *ruoida* ‘shank’, *sarvva* ‘moose’, *sarvvis* ‘reindeer bull’, *suoidni* ‘grass, hay’, *suolu* ‘island’, *suorri* ‘fork, branch’, *vietka* ‘adze’, *vuoras* ‘old’; SaaL *miehttjen* ‘far away’, *muolos* ‘hole in the ice (near the shore in spring)’, *sassne* ‘tanned leather’; SaaL *ruodâs* ‘wrist part of a glove’, SaaS *saertie* ‘reindeer heart (as food)’. For the etymologies, see the Älgu database (<http://kaino.kotus.fi/algu/>).
 3. SaaN *bahta* ‘ass’, *boldni* ‘mound’, *borjjas* ‘sail’, *borsi* ‘rapids in a canyon’, *boršut* ‘foam’, *buoidi* ‘fat’, *deahkki* ‘muscle’, *duoddut* ‘tolerate’, *gahččat* ‘fall’, *gavja* ‘dust’, *geahččat* ‘look, watch’, *geardni* ‘thin snow-crust’, *gierdat* ‘endure’, *guobir* ‘reindeer hoof’, *guohpa* ‘mold’, *guoldu* ‘snow storm’, *guolla* ‘testicle’, *guomu* ‘chyme’, *guos’si* ‘guest’, *guovla* ‘overhanging snowdrift’, *guovlat* ‘peek’, *lađas* ‘joint’, *lahttu* ‘limb’, *luoikat* ‘lend’, *luoska* ‘decorative trimming on the edge of a man’s coat’, *mas’sit* ‘lose’, *ravda* ‘edge’, *ruoksi* ‘udder’, *ruossat* ‘stumble’, *ruovda* ‘edge’, *ruovdi* ‘iron’, *sadji* ‘place’, *suovdi* ‘gill’, *suovri* ‘filthy person’, *viesat* ‘get tired’, *vuohčču* ‘narrow and wet bog’, *vuohppi* ‘small and narrow bay’, *vuoksa* ‘depth of a fishing net’, *vuopman* ‘hunting fence’, *vuorbi* ‘lot’, *vuordit* ‘wait’, *vuordnut* ‘swear’, *vuos’su* ‘bellows’, *vuotta* ‘shoelace’, *vuovdi* ‘forest’; SaaS *boernes* ‘embryo’, *doerpedh* ‘need’, *gvejhtie* ‘strong heat’, *guelhtie* ‘cold weather in summer’, *moenedh* ‘mention’, *roevtedh* ‘get sunburnt’, *soegkes* ‘burnt’, *vuerie* ‘senses’; SaaL *buollda* ‘hillside’, *buollnat* ‘wilt’, *gahppat* ‘leap, jump’, *guobas* ‘witch’, *guorgoj* ‘rocky shore’, *luogge* ‘rectum’, *nuobrre* ‘thin inner part of birch-bark’, *vuolldo* ‘the strongest bull in the reindeer herd’; SaaP *ruos’sjie* ‘a kind of hard grass’; SaaSk *teä’mes* ‘dark, dim’. For the etymologies, see the Älgu database (<http://kaino.kotus.fi/algu/>).
 4. I have excluded one independent Baltic loan etymology which was still supported in Aikio (2006: 40), namely that of SaaN *biebmat* ‘feed’ (< PSaa *piemmē- ? < Pre-PSaa *päm̄mi-); this verb is compared to Lithuanian *penimis* ‘fatling’ by Sammallahti (1998: 231). The sound substitution *-nim- > *-mm- is in itself somewhat unusual, in addition to which there appears to be no Baltic verb that could account for the Saami form; the *-m-* is only found in the derived noun *penimis*, cf. Lithuanian *penas* ‘food’, *penėti* ‘feed, nurse, fatten’.
 5. In the case of SaaN *šielbmá* ‘threshold’ (cf. Lithuanian *šelmuo* ‘frame (of a window or roof); door; long beam, balk’), one is inclined to hypothesize that the Pre-Proto-Finnic source form *šelma actually survives in Finnish *helma* ‘hem’. Even though the assumed semantic shift ‘frame, etc.’ > ‘hem’ is not straightforward, the Finnish word lacks a plausible alternative etymology; the proposed comparison to Proto-Germanic *xelmaz ‘helmet’ is even more difficult to substantiate semantically.

6. Note also Erzya Mordvin *l'epe* 'alder', which could go back to yet a third shape *lippä; more probably, however, the word was borrowed into Mordvin from Pre-Proto-Finnic.
7. One might consider it strange to group Pite Saami together with South and Ume Saami under the southwest dialect, because synchronically Pite Saami is much closer to Lule Saami. However, from a dialectological point of view there is no actual contradiction, as the earliest dialect boundaries need not have been located where the deepest language boundaries later developed. On the other hand, the evidence regarding clusters of the stop + liquid type in Pite Saami is limited to two words in my data and there is also one counterexample (*r-* instead of *tr-* in the word for 'thrush'), so this classification of Pite Saami remains hypothetical. However, this detail has no implication to the validity of the model in other respects.
8. It is possible that there was a further subdialect boundary within the northwest dialect. This is suggested by the fact that Lule Saami shows a cluster *sl-* or *sjl-* in loans, whereas North Saami only has *l-*, as well as by the curious detail that the predecessors of these languages seem to have independently borrowed the Proto-Scandinavian word *flauha[z] 'flea' in different shapes: L *láfes* (< *lāffēs) vs. N *lávkkis* (< *lāvkkēs). Due to the limited evidence, however, this question will not be pursued further here.
9. A new etymology: SaaN *dávžat* 'whet' < PSaa *tāmčë- < PScand *dang^wja- > ON *dengja* 'hammer; whet (e.g. a scythe)'.
10. A new etymology: SaaN *ráhččat* 'stretch a skin to dry' < PSaa *rāččë- < PScand *braidja- > ON *breiða* 'stretch out, spread out (e.g. for drying), unfold'.
11. Interestingly, over a hundred years later the same way of thinking lives on in Wiik's (2004) extravagant theory of the origin of Saami. Just like Wiklund, Wiik confuses racial (genetic) and linguistic concepts, and connects modern ethnic groups with remote prehistoric periods. A curious example is Wiik's (2004: 30) illustrative map of Northern Europe at the end of the last Ice Age, in which "Saami people" are portrayed wandering in a huge circle around the receding ice sheet. Although Wiklund's fantasies about Ice Age Saami differed in details, the similarities are striking.
12. The following corrections can be made to Sammallahti's material on early independent Indo-European loans in Saami:
 - SaaN *guoržžu* 'evil spirit; person with the evil eye' can be excluded from the list as it is most probably cognate with Fi *karsea* 'ugly, terrible' and *karsas* 'squint-eyed'.
 - SaaN *deatnu* 'major river', which is mainly attested in the eastern inland dialects of North Saami, is probably a metaphorical appellativization of the river name *Deatnu* (Tana), the major river in the area (Paikkala 2007 s.v. *Teno*); as a parallel it can be mentioned that the Finnish word *kymi* 'major river', mainly attested in dialects of the Kymi basin, seems to have a similar background in a river name. As the river name *Deatnu* appears to be primary and its original appellative basis remains unknown, it cannot be etymologized as Indo-European.
 - SaaN *suopman* 'dialect; tone of voice' should have a distribution index of 3 and not 1, as cognates are also attested in Skolt and Ter Saami. As a side note, Sammallahti (2001: 401) derives the word from Indo-European *stomen- 'mouth', but it could be semantically better compared to Indo-European *sh₂omen- 'song' (> Greek *hymnos* 'hymn', Vedic *sāman-* 'song'); note especially the meanings of SaaSk *suõmm* 'melody' and SaaT *sīm* 'quiet voice; section of an incantation chant'.

- SaaI *korttâđ* ‘bind’ (< PSaa *kérttē-) is the derivational base of the noun *korccá* ‘leather strap’ (< *kërccē < *kérttēs), cognates of which are found in all Saami languages except for Ter Saami (Lehtiranta 1989: 42–43); hence, the word should have a distributional index of 8 instead of 1.
 - SaaN *čuoris* ‘brownish gray (of an animal’s hair)’ cannot be separated from its consonant-stem derivative *čuorgat* ‘gray (of hair)’, which gives it a distributional index of 8 instead of 4.
 - SaaN *čearda* ‘tribe’ has a cognate in South Saami and should have a distributional index of 3.
 - SaaN *burgot* ‘forbid’ has a cognate in Pite Saami and should have a distributional index of 3.
 - SaaN *gatna* ‘dandruff’ also has Pite and Kildin Saami cognates and should have a distributional index of 7.
 - SaaN *gárži* ‘cramped’ has a cognate in Pite Saami and should have a distributional index of 7.
13. There is also a village and parish called *Elimäki* in eastern Nyland. This name has a slightly different Saami etymology. While *-mäki* means ‘hill’, there is no actual hill with the same name in the area. The name is a folk-etymologically restructured back formation of the former name of lake *Elimäänjärvi*, which has been drained. As the lake was situated in the headwaters of River Teutjoki, the specific *Elimää-* quite obviously reflects Proto-Saami *ēlē-mus ‘uppermost’.
14. Theoretical and methodological problems similar to those in Uralic prehistoric studies have surfaced in research traditions in other areas as well. For instance, Erdosy (1995) describes a very familiar-sounding situation in attempts to combine archaeological and linguistic results on Indo-Aryan prehistory, involving, for instance, “mutual ignorance of the aims, complexity and limitations of the respective disciplines”, “a feedback cycle of misinformation [between the disciplines]”, “fatal flaws in the definition of “culture” as a recurring assemblage of artefacts”, and a “virtual absence of theoretical discussion”.

Appendix. Proto-Scandinavian loans with initial consonant clusters and the phoneme /f/ in West Saami

Loans with /f/:

- SaaN *fiervá* (< *fiervā), SaaS *fierve* (< *fiervē) ‘low tide; beach revealed by low tide’ < PScand *ferwō > ON *fjara* ‘low tide; beach revealed by low tide’.
– ON *fjara* is an analogically restructured nominative form; the expected phonologically regular form would be **fjor*.
- SaaN *fiel’lu* (< *fielō) ‘board’ < PScand *felhō > ON *fjöl* ‘board’
- SaaN *fiščču* (< *fiščō) ‘seal’s flipper’ < PScand *fitjō > ON *fit* ‘webbed foot of waterfowl’
- SaaN *fális* (< *fālēs) ‘whale’ < PScand *h^walaz > ON *hvalr* ‘whale’
- SaaL *láfes* (< *lāffēs) ‘flea’ < PScand *flauha[z] > ON *fló* ‘flea’
- SaaN *márfi* (< *mārfē) ‘sausage’ < PScand *marh^wa > ON *morr* ‘suet’. – Note that SaaSk *mää’rf* ‘sausage’ is evidently a rather recent loan from North Saami due to its /f/ and its irregular lack of consonant gradation.

Loans with an initial cluster of the type *sC-:

- SaaN *spálfu* (< *svālfō) ‘swallow (bird)’ < PScand *swalwō (? *swalh^wō) > ON *svala* ‘swallow’. – ON *svala* is an analogically restructured nominative (the expected form is *svǫl).
- SaaS (obsolete) <*slikt*> (< *sliktē) ‘smooth’, SaaN *livttis* ‘smooth and even’ (< *liktēs) < PScand *slihtaz > ON *slétr* ‘flat, smooth, even’
- SaaN *skálžu* (< *skālčō) ‘seashell’ < PScand *skaljō > ON *skel* ‘shell’
- SaaN *skávžá* (< *skāvčā) ‘beard’ < PScand *skagja > ON *skegg* ‘beard’
- SaaL *sjlávttjá* ‘warble fly’, SaaN *lávžá* ‘horsefly’ (< *(s)lāvčā) < PScand *klag-gjan > ON *kleggi* ‘horsefly’
- SaaN *stážžu* (< *stānjō) ‘crucible’ < PScand *stainjō. – Not attested in Scandinavian, but *stainjō is the expected cognate of Old High German *steinna*, Old English *stēna* ‘stone or earthenware pot’.
- SaaL *slájvve* (< *slājvē) ‘powerless, weak, diluted’, SaaN *láivi* (< *lājvē) ‘diluted, tasteless’ < PScand *slaiwaz > ON *slær* ~ *sljór* ‘blunt, dull’
- SaaN *skávhli* (< *skāklē) ‘gull’ < PScand *skagl—, cf. *skaglingaz > ON *skeg-lingr* ‘young gull’
- SaaN *skievis* (< *skievēs) ‘jumpy, nervous’ < Pre-PScand *skewwaz > PScand *skeggwaz > Swedish and dialectal Norwegian *skygg* ‘shy, timid’.
- SaaL *skovve* (< *skovē) ‘pattern, image; specter, ghost’ < Pre-PScand *skuwwan > PScand *skuggwan > ON *skuggi* ‘shadow; specter’
- SaaL *snáves* (< *snāvēs) ‘short-haired’ < Pre-PScand *snawwiz > PScand *snag-gwiz > ON *snøgr* ‘short-haired’
- SaaN *skieddu* (< *skientō) ‘old and worn skin’ < Pre-PScand *skenþō > PScand *skinþō > ON *skinn* ‘skin’ (cf. SaaL *skidde* ‘skin (as merchandise)’ < *skintē, a later loan from PScand *skinþō)

Loans with an initial cluster of the type stop + liquid:

- SaaU (obsolete) <*pruosse*> (< *pruosē) ‘severe cold’ < PScand *frozan (< *fruzan) > ON *frør* ~ *frer* ‘frost’
- SaaS *kraavhtse* (< *krāvccē < *krāvttēs), SaaN dial. *rákca* (< *rāvccē < *rāvttēs) ‘porridge’ < PScand *grautaz > ON *grautr* ‘porridge’
- SaaS *kraessjie* ~ *kraassjoe* (< *krāššē ~ *krāššō) ‘bog-bean’ < PScand *grasja > Swedish *gräs* ‘grass’
- SaaS *kraevies* ‘gray’ (< *krāvēs) < PScand *grāwaz > ON *grár* ‘gray’
- SaaS *provtse* ~ *provrese* (< *pruvdēs), SaaN dial. *ruvddas* (< *ruvdēs) ‘bride’ < PScand *brūdiz > ON *brúðr* ‘bride’
- SaaS *krievvie* (< *krievvē) ‘reindeer herd’ < PScand *kreu(h)— > dialectal Norwegian *kru* ‘a small corral for cattle’
- SaaS *plievvies* ‘shy’ (< *plievvēs) < PScand *bleugaz > ON *bljúgr* ‘bashful, shy’.
– The substitution of PSaa *-vv- for PScand *-ug- suggests that the voiced stop was phonetically realized as a spirant [ɣ] in the source form.

SaaS *plaassa* (< *plässā) ‘large rock that sticks out of the ground or up from water’, SaaN *lás’sá* (< *lässā) ‘flat rock; skerry’ < PScand *flasja > ON *fles* ‘flat rock’

SaaS *plaahkoe* ‘low flat terrain’ (< *plākkō), SaaN *láhku* ‘wide, flat basin up in the mountains’ (< *lākō) < PScand *flahu > ON *flǫ* ‘rock ledge; gently sloping valley up in the mountains’

Abbreviations

ON	Old Norse	SaaN	North Saami
PSaa	Proto-Saami	SaaP	Pite Saami
PScand	Proto-Scandinavian	SaaS	South Saami
SaaI	Inari Saami	SaaSk	Skolt Saami
SaaK	Kildin Saami	SaaT	Ter Saami
SaaL	Lule Saami	SaaU	Ume Saami

References

- Aikio, Ante 2000: Suomalais-saamelaisesta kantakielestä nykyisiin saamelaiskieliin. – Jukka Pennanen & Klemetti Näkkäljärvi (eds), *Siiddastallan. Siidoista kyliin. Luontosidonnainen saamelaiskulttuuri ja sen muuttuminen*. Oulu: Pohjoinen. 42–48.
- 2003: Suomen saamelaisperäisistä paikannimistä. – *Virittäjä* 1/2003: 99–106.
- 2004: An Essay on Substrate Studies and the Origin of Saami. – Irma Hyvärinen, Petri Kallio & Jarmo Korhonen (eds), *Etymologie, Entlehnungen und Entwicklungen: Festschrift für Jorma Koivulehto zum 70. Geburtstag*. Mémoires de la Société Néophilologique de Helsinki 63. Helsinki: Société Néophilologique. 5–34.
- 2006: On Germanic-Saami Contacts and Saami Prehistory. – *Journal de la Société Finno-Ougrienne* 91: 9–55.
- 2007a: Etymological Nativization of Loanwords: a Case Study of Saami and Finnish. – Ida Toivonen & Diane Nelson (eds), *Saami linguistics*. Amsterdam & Philadelphia: John Benjamins. 17–52.
- 2007b: Saamelaisajan paikannimistö Satakunnassa. – Aimo Hakanen & Reino Kero (eds), *Sata sanan juurta. Satakunnan vanhaa paikannimistöä*. Kokemäki: Satakunnan historiallinen seura. 14–25.
- 2007c: The Study of Saami Substrate Toponyms in Finland. – Ritva Liisa Pitkänen & Janne Saarikivi (eds), *The borrowing of place names in the Finno-Ugric languages*. Onomastica Uralica 4. Debrecen & Helsinki. 159–197.
- 2009: The Saami Loanwords in Finnish and Karelian. Unpublished PhD dissertation, University of Oulu. <<http://cc.oulu.fi/~anaikio/slw.pdf>>
- 2012: On Finnic long vowels, Samoyed vowel sequences and Proto-Uralic *x. – Tiina Hyytiäinen, Lotta Jalava, Janne Saarikivi & Erika Sandman (eds), *Per Urales ad Orientem: Iter polyphonicum multilingue. Festschrift tillägnad Juha Janhunen på hans sextioårsdag den 12 februari 2012*. Mémoires de la Société Finno-Ougrienne 264. Helsinki: Société Finno-Ougrienne. 227–250.

- Aikio, Ante & Aslak Aikio 2001: Heimovaelluksista jatkuvuuteen: suomalaisen väestöhistorian tutkimuksen pirstoutuminen. – *Muinaistutkija* 4/2001: 2–21.
- Barth, Fredrik 1969: *Ethnic groups and boundaries: the social organization of culture difference*. Oslo: Universitetsforlaget.
- Baudou, Evert 2004: *Arkeologiska tolkningar av kulturhistoriska fynd i Mellannorrlands järnålder*. – Jurij Kusmenko (ed.), *The Sámi and the Scandinavians: Aspects of 2000 Years of Contact*. Hamburg: Kovač.
- Bergsland, Knut 1996: *Bidrag til sydsamenes historie*. Sámi dutkamiid guovddáš / Senter for samiske studier, Skriftserie, Nr. 1. Tromsø: Sámi dutkamiid guovddáš.
- Bright, Jane O. & William Bright 1965: Semantic Structures in Northwestern California and the Sapir-Whorf Hypothesis. – *American Anthropologist*, New Series, Vol. 67, No. 5, Part 2: 249–258.
- Broadbent, Noel D. 2010: *Lapps and Labyrinths: Saami Prehistory, Colonization and Cultural Resistance*. Washington, D.C.: Smithsonian Institution.
- Carpelan, Christian 1984: Katsaus saamelaisten esihistoriaan. – Jarl Gallén (ed.), *Suomen väestön esihistorialliset juuret. Tvärminnen symposiumi 17.–19.1.1980*. Bidrag till kännedom av Finlands natur och folk 131. Helsinki: Societas Scientiarum Fennica. 97–108.
- 2003: Inarilaisten arkeologiset vaiheet. – Veli-Pekka Lehtola (ed.), *Inari – Aanaar. Inarin historia jääkaudesta nykypäivään*. Oulu: Inarin Kunta. 29–95.
- 2006: Ethnicitet, identitet, ursprung? Exemplet samerna. – Vesa-Pekka Herva (ed.), *People, Material Culture and Environment in the North. Proceedings of the 22nd Nordic Archaeological Conference, University of Oulu, 18–23 August 2004*. Studia humaniora ouluensia 1. Oulu: Oulun yliopisto. 75–82.
- 2008: Arkeologia ja kielten historia. – Petri Halinen, Visa Immonen, Mika Lavento, Terhi Mikkola, Ari Siiriäinen & Pirjo Uino (eds), *Johdatus arkeologiaan*. Helsinki: Gaudeamus. 313–324.
- Carpelan, Christian & Asko Parpola 2001: Emergence, contacts and dispersal of Proto-Indo-European, Proto-Uralic and Proto-Aryan in archaeological perspective. – Christian Carpelan, Asko Parpola & Petteri Koskikallio (eds), *Early Contacts between Uralic and Indo-European: Linguistic and Archaeological Considerations*. Mémoires de la Société Finno-Ougrienne 242. Helsinki: Société Finno-Ougrienne. 55–150.
- Charney, Jean O. 1993: *A Grammar of Comanche*. Lincoln: University of Nebraska Press.
- Drucker, Philip 1965: *Cultures of the North Pacific Coast*. San Francisco: Chandler.
- Eggan, Fred 1979: Pueblos: Introduction. – Alfonso Ortiz (ed.), *Handbook of North American Indians, Volume 9: Southwest*. Washington: Smithsonian Institution.
- Erdosy, George 1995: Language, material culture and ethnicity: Theoretical perspectives. – George Erdosy (ed.), *The Indo-Aryans of Ancient South Asia: Language, Material Culture and Ethnicity*. Berlin: Walter de Gruyter. 1–31.
- Fox, Anthony 1995: *Linguistic Reconstruction: Theory and Method*. Oxford: Oxford University Press.
- Gal, Susan 1996: *Language shift*. – Hans Goebel, Peter H. Nelde, Zdeněk Starý & Wolfgang Wölck (eds), *Kontaktlinguistik / Contact Linguistics / Linguistique de contact. 1. Halbband / Volume 1 / Tome 1*. Berlin & New York: Walter de Gruyter. 586–593.
- Gifford, Edward W. & Gwendoline Harris Block 1930: *Californian Indian Nights Entertainments*. Glendale, CA: Arthur H. Clarke.

- Hale, Kenneth & Harris, David 1979: Historical linguistics and archaeology. – Alfonso Ortiz (ed.), *Handbook of North American Indians. Volume 9: Southwest*. Washington: Smithsonian Institution. 170–177.
- Halinen, Petri 1999: Saamelaiset – arkeologinen näkökulma. – Paul Fogelberg (ed.), *Pohjan poluilla. Suomalaisten juuret nykytutkimuksen mukaan*. Bidrag till kännedom av Finlands natur och folk 153. Helsinki: Societas Scientiarum Fennica. 121–130.
- 2011: Arkeologia ja saamentutkimus. – Irja Seurujärvi-Kari, Petri Halinen & Risto Pulkkinen (eds), *Saamentutkimus tänään*. Helsinki: Suomalaisen Kirjallisuuden Seura. 130–176.
- Hansen, Lars Ivar & Bjørnar Olsen 2004: *Samenes historie fram til 1750*. Oslo: Cappelen Akademisk Forlag.
- Haugen, Einar 1953: *The Norwegian Language in America: A Study in Bilingual Behavior*. Bloomington: Indiana University Press.
- Heikkilä, Mikko 2011: Huomioita kantasaamen ajoittamisesta ja paikantamisesta sekä germaanisia etymologioita saamelais-suomalaisille sanoille. – *Virittäjä* 1/2011: 68–84.
- 2012: *Tampere* – saamelaisen *Tammerkosken* kaupunki. – *Virittäjä* 1/2012: 117–124.
- Helimskij, E. A. 1982: *Drevnejshie vengersko-samodijskie jazykovye paralleli*. Moskva: Nauka.
- Hindley, Reg 1990: *The Death of the Irish Language: a Qualified Obituary*. London: Routledge.
- Huurre, Matti 1979: *9000 vuotta Suomen esihistoriaa*. Helsinki: Otava.
- Häkkinen, Jaakko 2010a: Jatkuvuusperustelut ja saamelaisen kielen leviäminen (osa 1). – *Muinaistutkija* 1/2010: 19–36.
- 2010b: Jatkuvuusperustelut ja saamelaisen kielen leviäminen (osa 2). – *Muinaistutkija* 2/2010: 51–64.
- Hämäläinen, Pekka 2008: *The Comanche Empire*. New Haven & London: Yale University Press.
- Itkonen, Erkki 1954: Über die suffixalen Labialvokale im Lappischen und Ostseefinnischen. – *Scandinavica et Fenno-Ugrica. Studier tillägnade Björn Collinder den 22 juli 1954*. Uppsala: Almqvist & Wiksell. 183–191.
- Itkonen, T. I. 1948: *Suomen lappalaiset vuoteen 1945*. Porvoo: WSOY.
- 1958: *Koltan- ja kuolanlapin sanakirja*. Lexica Societatis Fenno-Ugricae XV. Helsinki: Société Finno-Ougrienne.
- Itkonen, Terho 1984: Suomessa puhutun suomen kantasuomalaiset juuret. – Jarl Gallén (ed.) *Suomen väestön esihistorialliset juuret. Tvärminnen symposiumi 17.–19.1.1980*. Bidrag till Kännedom av Finlands Natur och Folk 131. Helsinki: Societas Scientiarum Fennica. 347–363.
- 1992: Uudenmaan suomalaisasutus ja kielimaantiede. – Kyösti Julku (ed.), *Suomen varhaishistoria. Tornion kongressi 14.–16.6.1991*. Rovaniemi: Pohjois-Suomen historiallinen yhdistys. 95–130.
- 1993: Lapin perua Sisä-Suomen sanastossa ja paikannimissä. – Ulla-Maija Kulonen (ed.), *Festschrift für Rajja Bartens zum 25.10.1993*. Mémoires de la Société Finno-Ougrienne 215. Helsinki: Société Finno-Ougrienne. 159–168.
- 1997: Reflections on Pre-Uralic and the “Saami-Finnic protolanguage”. – *Finisch-Ugrische Forschungen* 54: 229–266.

- Janhunen, Juha 2005: När kom finnarna till Finland? – *Sphinx* 2004–2005: 77–91.
- Jones, Gwyn 1968: *The History of the Vikings*. New York & Toronto: Oxford University Press.
- Julku, Kyösti 1992: *Suomen vyötärön kerralliset saamelaiset*. – Kyösti Julku (ed.), *Suomen varhaishistoria. Tornion kongressi 14.–16.6.1991*. Rovaniemi: Pohjois-Suomen historiallinen yhdistys. 131–136.
- Kallio, Petri 2006: Suomen kantakielten absoluuttista kronologiaa. – *Virittäjä* 1/2006: 2–25.
- 2009: Stratigraphy of Indo-European loanwords in Saami. – Tiinä Äikäs (ed.), *Máttut – máddagat: The roots of Saami ethnicities, societies and spaces / places*. Publications of the Giellagas Institute 12. Oulu: University of Oulu. 30–45.
- (forthcoming): Jälkitavujen diftongit kantasuomessa. – *Fenno-Ugrica Suecana*.
- Kirchoff, Paul 1954: Gatherers and Farmers in the Greater Southwest: a Problem in Classification. – *American Anthropologist* 56/4: 529–550.
- Koivulehto, Jorma 1976: Vanhimmista germaanisista lainakosketuksista ja niiden ikäämisestä. – *Virittäjä* 80: 33–47, 247–290.
- 1988: Lapin ja itämerensuomen suhteesta – ieur. -*Tr*-yhtymän korvautuminen lainoissa. – *Virittäjä* 92: 26–51.
- 1992a: Direkte Kontakte des Lappischen mit dem Baltischen. – Pál Deréky, Timothy Riese, Sz. Bakró-Nagy Marianne & Hajdú Péter (eds), *Festschrift für Károly Rédei zum 60. Geburtstag*. Studia Uralica 6. Wien. 299–304.
- 1992b: Germanisch-lappische Lehnbeziehungen. – L. Honti, S.–L. Hahmo, T. Hofstra, J. Jastrębska & O. Nikkilä (eds), *Finnisch-ugrische Sprachen Zwischen Dem Germanischen und Dem Slavischen Sprachraum: Vorträge Des Symposiums Aus Anlass Des 25-jährigen Bestehens Der Finnougristik an Der Rijksuniversiteit Groningen*. Amsterdam & Atlanta. 85–95.
- 1999: Das Verhältnis des Ostseefinnischen und des Lappischen im Lichte der alten Lehnwörter: Die Substitution des fremden Wortausgangs *-CVz im Lappischen. – Pekka Lehtimäki (ed.), *Sprachen in Finnland und Estland*. Harrowitz: Wiesbaden. 7–22.
- 2001: The Earliest Contacts between Indo-European and Uralic Speakers in the Light of Lexical Loans. – Christian Carpelan, Asko Parpola & Petteri Koskikallio (eds), *Early Contacts between Uralic and Indo-European: Linguistic and Archaeological Considerations*. Mémoires de la Société Finno-Ougrienne 242. Helsinki: Société Finno-Ougrienne. 235–263.
- Koponen, Eino 1996: Lappische Lehnwörter im Finnischen und Karelischen. – Lars Gunnar Larsson (ed.), *Laponica et Uralica. 100 Jahre finnisch-ugrischer Unterricht an der Universität Uppsala*. Studia Uralica Uppsaliensia 26. Uppsala: Finsk-ugrisk institutionen. 83–98.
- Korhonen, Mikko 1979: Lapin kielen varhaisvaiheista. – *Suomalainen tiedeakatemia, vuosikirja* 1977: 129–140.
- 1981: *Johdatus lapin kielen historiaan*. Helsinki: Suomalaisen Kirjallisuuden Seura.
- Korhonen, Olavi 1979: Lappische Lehnwörter im ältesten Einödsgebiet Finnlands. – *Finnisch-Ugrische Forschungen* 43: 175–206.
- Kroeber, Alfred Louis 1925: *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin No. 78. Washington, D.C.: Smithsonian Institution. [Reprinted by California Book Co., Ltd., Berkeley, Calif.]

- Kuokkala, Juha 2012: *Jälkitavun labiaalivokaalit saamessa ja itämerensuomessa*. – Master’s thesis, University of Helsinki. <<https://helda.helsinki.fi/handle/10138/34015>>
- Kuzmin, Denis 2010: Nimistö Vienan Karjalan asutushistorian lähteenä. – *Virittäjä* 2/2010: 223–252.
- Lehtiranta, Juhani 1989: *Yhteissaamelainen sanasto*. Mémoires de la Société Finno-Ougrienne 200. Helsinki: Société Finno-Ougrienne.
- Lehtola, Veli-Pekka 2008: Eteläisen Suomen muinaiset lappalaiset. – *Muinaistutkija* 4/2008: 2–18.
- Matveev, A. K. 2001: *Substratnaja toponimija Russkogo Severa*. Jekaterinburg: Ural’skogo universiteta.
- McLaughlin, John 2000: Language Boundaries and Phonological Borrowing in the Central Numic Languages. – Gene Casad & Thomas Willett (ed.), *Uto-Aztecan: Structural, Temporal, and Geographical Perspectives*. Salt Lake City: University of Utah Press. 293–304.
- McSwain, Romola 1977: *The past and future people*. Melbourne: Oxford University Press.
- Melerska, Dorota 2010: Vem är “en riktig älvdaling”? Identitetsmarkörer i dagens Älvdalen. – *Folia Scandinavica Posnaniensia* 11: 123–133.
- Mullonen, I. I. 2002: *Toponimija Prisivir’ja: problemy etnojazykovogo kontaktirovanija*. Petrozavodsk.
- Nesheim, Asbjørn 1967: Eastern and Western Elements in Lapp Culture. – *Lapps and Norsemen in Olden Times*. Instituttet for sammenlignende kulturforskning. Serie A: Forelesninger. Oslo: Universitetsforlaget.
- Nielsen, Hans Frede 2000: *The Early Runic Language of Scandinavia: Studies in Germanic Dialect Geography*. Heidelberg: Winter.
- Odner, Knut 1983. *Finner og terfinner: etniske prosesser i det nordlige Fenno-Scandinavia*. Oslo Occasional Papers in Social Anthropology no. 9. Oslo: University of Oslo.
- Paikkala, Sirkka (ed.) 2007: *Suomalainen paikannimikirja*. Helsinki: Karttakeskus.
- Peiros, Ilia 1997: On the correlation between linguistic and archaeological reconstructions. – Patrick McConvell & Nicholas Evans (eds), *Archaeology and Linguistics: Aboriginal Australia in a Global Perspective*. Melbourne & New York: Oxford University Press.
- Qvigstad, J. 1893: *Nordische Lehnwörter im Lappischen*. Christiania Videskabs-Selskabs Forhandling for 1893 No. 1. Christiania.
- 1945: Dobbeltkonsonant i forlyd i lappisk. – *Festskrift til Konrad Nielsen på 70-årsdagen 28. August 1945*. Oslo: Brøgger. 193–212.
- Rahkonen, Pauli 2009: The Linguistic Background of the Ancient Meshchera Tribe and Principal Areas of Settlement. – *Finnisch-Ugrische Forschungen* 60: 160–200.
- 2011a: Finno-Ugrian hydronyms of the River Volkhov and Luga catchment area. – *Journal de la Société Finno-Ougrienne* 93: 205–266.
- 2011b: *Tampere* – saamelainen koskiappellatiivi. – *Virittäjä* 2/2011: 252–256.
- Ray, Arthur J. 1996: The Northern interior, 1600 to modern times. – Bruce G. Trigger & Wilcolm E. Washburn (eds), *The Cambridge history of the native peoples of the Americas. Volume 1, Part 2*. Cambridge: Cambridge University Press. 259–327.
- Ross, Malcolm 1997: Social Networks and Kinds of Speech Community Event. – Roger M. Blench & Matthew Spriggs (eds), *Archaeology and Language Vol. I: Theoretical and Methodological Orientations*. London: Routledge. 209–261.

- 2001: Contact-induced change in Oceanic languages in north-west Melanesia. – Alexandra Aikhenvald & R. M. W. Dixon (eds), *Areal diffusion and genetic inheritance: problems in comparative linguistics*. Oxford: Oxford University Press. 134–166.
- Saarikivi, Janne 2002: Saamskaja substratnaja toponimija Russkogo Severa s tochki zrenija sravnitel'noj finno-ugristiki. – *Finno-ugorskoje nasledije v russkom jazyke 2. Sborniki nauchnyh trudov*. Jekaterinburg: Izdatel'stvo Ural'skogo universiteta. 94–112.
- 2004a: Is there Palaeo-European substratum interference in the western branches of Uralic? – *Journal de la Société Finno-Ougrienne* 90: 187–214.
- 2004b: Über das saamische Substratnamengut in Nordrussland und Finnland. – *Finnisch-Ugrische Forschungen* 58: 187–214.
- 2011: Saamelaiskielet – nykypäivää ja historiaa. – Irja Seurujärvi-Kari, Petri Halinen & Risto Pulkkinen (ed.), *Saamentutkimus tänään*. Helsinki: Suomalaisen Kirjallisuuden Seura. 77–119.
- Saarikivi, Janne & Mika Lavento 2012: Linguistics and Archaeology. A Critical View of an Interdisciplinary Approach with Reference to the Prehistory of Northern Scandinavia. – Charlotte Damm & Janne Saarikivi (eds), *Networks, Interaction and Emerging Identities in Fennoscandia and Beyond*. MSFOu 265. Helsinki: Société Finno-Ougrienne. 177–216.
- Salmons, Joe 1992: Northwest Indo-European Vocabulary and Substrate Phonology. – Roger Pearson (ed.), *Perspectives on Indo-European Language, Culture and Religion: Studies in Honor of Edgar C. Polomé. Vol. 2*. Journal of Indo-European Studies, Monograph Series 9. Institute for the Study of Man. 265–279.
- Salo, Unto 2000: Suomi ja Häme, Häme ja Satakunta. – Jukka Peltovirta (ed.), *Hämeen käräjät I*. Hämeenlinna & Harjavalta: Hämeen Heimoliitto & Emil Cedercreutzin säätiö. 18–230.
- Sammallahti, Pekka 1984: Saamelaisten esihistoriallinen tausta kielitieteen valossa. – Jarl Gallén (ed.) *Suomen väestön esihistorialliset juuret. Tvärminnen symposiumi 17.–19.1.1980*. Bidrag till Kännedom av Finlands Natur och Folk 131. Helsinki: Societas Scientiarum Fennica. 137–156.
- 1998: *The Saami languages – an introduction*. Käräsjohka: Davvi girji.
- 1999: Saamen kielten ja saamelaisten alkuperästä. – Paul Fogelberg (ed.), *Pohjan poluilla. Suomalaisten juuret nykytutkimuksen mukaan*. Bidrag till kännedom av Finlands natur och folk 153. Helsinki: Societas Scientiarum Fennica. 249–280.
- 2001: The Indo-European loanwords in Saami. – Christian Carpelan, Asko Parpola & Petteri Koskikallio (eds), *Early Contacts between Uralic and Indo-European: Linguistic and Archaeological Considerations*. Mémoires de la Société Finno-Ougrienne 242. Helsinki: Société Finno-Ougrienne. 397–415.
- 2011: From Africa to the Arctic – Expansions, Bottlenecks and Contacts in the Linguistic Prehistory of the Saami. – Cornelius Hasselblatt, Peter Houtzagers & Remco van Pareren (eds), *Language Contact in Times of Globalization*. Amsterdam & New York: Rodopi. 197–216.
- Sapir, Edward 1921: *Language: an Introduction to the Study of Speech*. New York: Harcourt, Brace & co.
- Schefferus, Joannis 1673: *Laponia*. Francofurti: Christian Wolff.
- Skutnabb-Kangas, Tove 2000: *Linguistic Genocide in Education – or worldwide diversity and human rights?* Mahwah, N. J.: L. Erlbaum Associates.

- Sköld, Tryggve 1961: *Die Kriterien der urnordischen Lehnwörter im Lappischen*. Uppsala: Institutionen för nordiska språk.
- Sommerseth, Ingrid 2010: Archaeology and the debate on the transition from reindeer hunting to pastoralism. – *Rangifer* 31 (1): 111–127.
- Storli, Inger 1991: De østlige smykkene fra vikingtid og tidlig middelalder. *Viking* 1991: 89–104.
- Tegengren, Helmer 1952: *En utdöd lappkultur i Kemi Lappmark: studier i Nordfinlands kolonisationshistoria*. Acta Academiae Aboensis, Humaniora 19:4. Åbo: Åbo akademi.
- Thomason, Sarah Grey & Kaufman, Terrence 1988: *Language Contact, Creolization, and Genetic Linguistics*. Berkeley, CA: University of California Press.
- Thomsen, Vilhelm 1869: *Den gotiske sprogklasses indflydelse på den finske*. København: Gyldendalske boghandel.
- van Kirk, Sylvia 1980: *Many Tender Ties: Women in Fur-Trade Society, 1670–1870*. Norman: University of Oklahoma Press.
- Voionmaa, Väinö 1943: Uudenmaan lappalaiset: muinaishistoriallinen paikannimitutkimus. – *Suomalainen tiedeakatemia, esitelmät ja pöytäkirjat* 1942–1943: 73–90.
- Wiik, Kalevi 2004: Saamelaisten alkuperä. – *Tieteessä tapahtuu* 2/2004: 23–38.
- Wiklund, K. B. 1896: *Entwurf einer urlappischen Lautlehre*. Mémoires de la Société Finno-Ougrienne X. Helsinki: Société Finno-Ougrienne.
- 1911–1912: Lapparnas förna utbredning i Finland och Ryssland, belyst af ortnamnen. – *Le Monde Oriental* 5: 101–136, 175–196.
- 1918: Die Erforschung der germanischen Lehnwörter im Finnischen und Lappischen. – *Indogermanisches Jahrbuch* 5.
- Wolf, Eric 1982: *Europe and the People Without History*. Berkeley, CA: University of California Press.
- Wolfart, H. C. 1997: Sketch of Cree, an Algonquian Language. – William C. Sturtevant & Ives Goddard (eds), *Handbook of North American Indians Vol. 17: Languages*. Washington: Smithsonian Institution. 390–439.
- Zachrisson, Inger 2004: *Samisk-nordiska kulturkontakter i Mellanskandinavien under 6–700-talen e.kr. (vendeltid) utifrån det arkeologiska materialet*. – Jurij Kusmenko (ed.), *The Sámi and the Scandinavians: Aspects of 2000 Years of Contact*. Hamburg: Kovač.
- Zachrisson, Inger, Verner Alexandersen, Martin Gollwitzer, Elisabeth Iregren, Lars-König Königsson, Claes-Henric Siven, Norbert Strade & Jan Sundström 1997: *Möten i gränsland: Samer och Germaner i Mellanskandinavien*. Stockholm: Statens Historiska Museum.