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Linguistics and Archaeology: A Critical View of an Interdisciplinary Approach with Reference to the Prehistory of Northern Scandinavia

Introduction

Archaeology and linguistics both investigate the past of human populations. They offer an opportunity to reach the past of mankind thousands of years before the present day and to obtain information on human groups of a particular period and region, their forms of livelihood, societal structures, beliefs and intergroup relations.

While linguistics and archaeology both have multiple methodologies and research materials, some fundamental differences can be discerned between them already from the outset. Whereas a linguist studies (mainly) mental and portable cultural heritage, the archaeological material is spatial and has a particular location. Linguistics studies cultural concepts and a human world view that is related to the physical world through a process of cultural conceptualization, whereas archaeology investigates practical and often neglected sides of human life – material remains and waste. Archaeological research materials almost always have an absolute chronology in years, whereas linguistic shifts, changes and vocabulary layers can, in most cases, only be dated relatively, in a relation to other shifts, changes and layers.

Notwithstanding considerable differences in both methodologies and research materials, the results of archaeology and linguistics have often been employed together to create a coherent narrative of the past. The goal in both disciplines has often been seen in the reconstruction of large-scale social models of past human groups, their complex interaction and the change of such actors in time and space.

It is obvious, however, that there are many caveats to such an interdisciplinary approach. The authors of this article, a linguist and an archaeologist, share the confidence that these two disciplines can indeed be used together fruitfully in the investigation of the human past, yet they also believe that many of those treatments that claim to combine their results, in fact, misrepresent the one or the other, or seek overly clear-cut correlations between research materials that,

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in principle, are of very different character and contain information that is connected with different aspects of the life of past populations.

The material discussed in the present paper is mainly from the field of Northern Fennoscandian prehistory and is connected especially with the Saami groups.[1] The article does not aim to provide a general ethnogenetic treatment of the origin of the Saami groups (such as presented by Hansen & Olsen 2004 or Carpelan 2003) and instead is theoretical in orientation. The authors set out to scrutinize the question as to what are the linguistically and archaeologically discernible phenomena that, in principle, can correspond to each other in the material related to the prehistory of a particular area where specific modern ethnicities subsequently emerged. They agree in that in many cases no clear-cut correlations between archaeology and linguistics can be established. The results of archaeology and linguistics are parallel, not correlating. They tell different stories of the same past, in a similar manner to separate witnesses who were involved in a series of events but experienced it so differently that the investigator is left with a variety of choices for reconstructing materialized incidence.

Many of the interdisciplinary treatments based on linguistics and archaeology available in the scholarly literature are attempts at a large-scale interdisciplinary synthesis of the origins of the presently existing linguistic and ethnic groups. This is the case in discussion on the origin of Indo-European speakers by Renfrew (1987), Mallory (1988) and Anthony (2007), a similar discussion provided by Heggarty (2007, 2008) on the origin of the Incas and the Quechua languages, and numerous papers on the linguistic expansion of Austronesian speakers in the Pacific Rim (for instance, in the collection of papers by Matthew & Spriggs [1997, 1998]). The present article differs from such approaches in that the authors stress the multiple characteristics of correlations between linguistics and archaeology. Instead of developing large-scale areal syntheses of the origin of the present groups, they suggest at looking for correlations at different levels, of a local, areal and network nature, and using the two disciplines together to interpret the cultural relevance of individual archaeological sites, the toponymy of a particular area, or the spread of a particular artefact type, to mention just some possibilities. While pointing to such opportunities of varied interdisciplinary cooperation, the authors take a predominantly sceptical stand on attempts to find areal correlations between past language areas and archaeologically definable zones.

The structure of the article is the following. Firstly, general remarks are made concerning the methodologies and research objects of linguistics and archaeology (next section). In this connection, some approaches which claim to combine linguistics and archaeology are criticized, most notably those which set up to look for the roots of present ethnicities as well as those based on the combinations of archaeological cultures and the past language areas. Various

1. The article was prepared within an interdisciplinary research group concentrating on Fennoscandian prehistory (*Early Networking in Northern Fennoscandia,* chair Charlotte Damm, Centre for Advanced Studies, Norwegian Academy of Science and Letters, Oslo).

problems related to such approaches are discussed in some detail in the section *Combining the Results: a Critical Account*.

Secondly, it will be demonstrated that other kinds of correlations could be established between linguistic and archaeological material which are, at least in some contexts, more reliable and fruitful, even if they also are less universal and less telling from the point of view of the past ethnicities and language areas. These correlations are discussed alongside the criticism regarding the areal and ethnic approaches (in the two next sections) and exemplified on the basis of material related to Northern Fennoscandian prehistory (in the section *Examples of Correlations*). Most notably, three types of correlations are discussed, namely

1) the local correlations of physical and toponymic environments, and archaeological sites
2) correlations of ecological areas, speech communities and clusters of archaeological findings
3) the network-like correlations of widespread linguistic features (especially cultural vocabulary) and materials, technologies, artefact types and, in some cases, whole archaeological techno-complexes

In addition to the aforementioned three main types of correlations, also other possible types of correlations are briefly touched upon in the section *Examples of Correlations*. The authors also stress that the correlation that is sought the most in the research history – correspondence between a language area and an archaeological culture – in fact occurs rarely, if ever.

Research Objectives of Linguistics and Archaeology

Linguistics

Although language is an essential feature of culture, thought and ethnicity, it is not always the main feature in any of them. Language as a socially learned but biologically determined capacity of the human race, is used as a communicative tool in warning, ordering, asking, assuring and persuading, but also as a cognitive tool in reasoning, learning, understanding and explaining. Through these functions it has evolved into systems of writing, reading, preserving and creating the cultural heritage as well as maintaining ethnic and other types of identities.

Historical linguistics uses material collected from a variety of sources and studies their variation in historical perspective. The study of the variation of linguistic features in different vernaculars as they evolve in space and time, and the classification of these vernaculars into languages are related enterprises. Historical linguistics investigates the hierarchies of languages, for instance, dialects, language families and phyla, and studies their emergence as well as contacts

between them. It consists of several more or less independent fields of study that concentrate on particular parts of the language system, such as sound history (the phonematic history of a particular language), etymology (study of the origin of words), contact linguistics (study of bi- and multilingual interferences), palaeolinguistics (study of the past cultures on the basis of reconstructed protolanguages) and toponymistics (study of place names). It presents its results in the form of reconstructions, taxonomies and their areal and historical interpretation. (For general references regarding the different methods of historical linguistics cf. Campbell 2004, Fox 1995; a good introduction aimed for archaeologists is provided by Heggarty 2007).

The research 'materials' of historical linguistics are not material in the strict sense, but consist of instances of speech presented in writing or recording. A historical linguist typically collects all instances of a particular item under investigation, whether a phoneme, word, grammatical structure or a toponymic type to study its variation. These can be found in written documents (if such exist), or dialectal and sociolectal material that is collected from the speakers of the investigated languages by field work. Depending on whether a linguist is interested in the history of a particular language or a group of languages he takes into account either all the dialects of one language or all the instances of the investigated item (a word, sound cluster, structure, etc.) in a group of languages.

As is reflected in the various methodologies of the historical linguistics, the language consists of many systems, some of which may have correspondences in material culture, and some of which do not have correspondences. For instance, the phonetic and phonematic level of the language does not appear to have correlates in the archaeological material (see section *Examples of Correlations*). The same appears to be true of the grammatical structure of the language. On the lexical level, however, the situation is much more satisfactory. It is obvious that the vocabulary of past languages denoted, among other things, the cultural (and natural) features that the archaeological record can uncover (cf. examples above and Tables 4–8).

It is the assumption of historical-comparative linguistics that words are either inherited, i.e. offsprings of words that were used in the predecessors of the modern languages, or borrowed, i.e. taken over from other languages to the language under investigation.[2] For instance, in the case of Northern Fennoscandia it is possible to make a distinction between the inherited Finno-Ugrian vocabulary of the Saami languages that has regular cognate words in other Finno-Ugrian languages (such as Finnic, and the languages spoken in the Eurasian taiga and tundra zone such as Mordvinian, Mari, Komi, Udmurt, Khanty, Mansi, Nenets, etc.), and the vocabulary borrowed into Saami from neighbouring languages (such as Scandinavian, Slavic and also Finnic that is historically related to Saami but, in addition to that, also a source of several layers of borrowings). However,

2. In addition, there are also derivations (words created from other words by morphological means, cf. *kind* à *kindness*), compounds (cf. *well-being*) and onomatopoetic words (*crumble*) but these are not of particular interest here.

the fact that such layers of vocabulary can be identified does not mean that a linguist would be able to identify outright also the regions and cultural networks from which those vocabulary layers derive, or give an absolute dating for such layers. The location of the speaking areas of Proto-Saami and Proto-Uralic and the dating of such protolanguages continue to be subjects of scientific debate (cf. Sammallahti 1995, Aikio 2004, Saarikivi 2011), as well as the location and dating of the language contacts of the Saami languages (cf. Aikio 2006; Aikio 2009; Häkkinen 2011). This is, in fact, a fairly usual state of affairs in historical linguistics where the location and dating of past protolanguages and linguistic contacts is typically established in a framework of a multitude of linguistic and language-external facts and is usually subject to dispute.

The next level investigated by historical linguistics that, in principle, may have a correspondence in the archaeological material is the language system as a whole (a dialect, sociolect, or a "language", however this is to be defined). It has been an implicit assumption of generations of scholars that languages can be identified also in the archaeological material by identifying the past speech communities of the languages under investigation in archaeologically definable areas.

Most of scholars agree, however, that several problems are related to such an enterprise. This is due to the fact that historical linguistics is mainly about the history of languages and the units that they contain (words, phonemes, etc.), not about the history of speech communities. Archaeology, in turn, is about artefacts, technologies, raw materials, communities and networks, not about historical sociolinguistics. Thus, as the whole discussion in this paper aims to demonstrate, various problems are related to linguistic identification of material remnants of the past linguistic communities (cf. section *Combining the Results: a Critical Account*).

Notwithstanding the difficulties, however, it is possible to reconstruct some of the social and ecological circumstances of past speech communities on the basis of the vocabulary of reconstructed protolanguages (palaeolinguistics, cf. above). Also, it is possible to reconstruct some of the contact networks of the past language communities on the basis of their loanword stock, if the borrowings can be reliably identified. Such an investigation creates prerequisites for locating and dating different phases of past language forms.

Although useful and necessary, the results reached by palaeolinguistic methodologies have been subject to criticism early on and they have to be implemented with a certain caution. For instance, it is technically possible to reconstruct a word meaning 'bullet' in Proto-Saami (cf. Lehtiranta 1988: 70–71), but on semantic grounds it is fairly clear that the word in question must have spread to individual Saami languages substantially later by areal diffusion. Further, the cultural concepts may have been familiar to the speakers of a particular protolanguage even if they have not employed similar features themselves. The fact that Saami had a Proto-Saami word for king, or words for domestic animals such as sheep or cow (Lehtiranta 1988: 54–55, 120–121, 58–59) does not have to

mean that the Saami themselves had a king, or that they kept domestic animals. Most likely, such concepts have been employed when referring to cultural institutions and living habits of the neighbouring Scandinavians. This hypothesis is supported by the fact that the words in question are Scandinavian borrowings (cf. similar criticism regarding the Indo-European protolanguage and cultural reconstruction by Heggerty 2007, 322 and Anttila 1989, 379).

From a point of view of identifying languages of archaeologically definable areas, it is worth noting that the archaeologically definable areas have been characterized by the use of common raw materials, technologies, artefact types and religious practices etc. Such culture complexes have, in the historical period, typically been multilingual. Notwithstanding this, languages of such areas have shared lexical and other linguistic innovations across language boundaries, many of them spread together with corresponding technological or religious innovations (cf. Christian terminology in Europe, the names of metals and technologies in various European languages, cultural concepts of Latin origin etc.). Multilingual speech communities covering large areas and comprising multiple speech communities have been labelled *Sprachbunds* (although the definition of such language areas tends to be fairly vague). These language unions comprise of languages that have engaged in contact through multilingual human networks and developed shared features. In many cases, it is reasonable to believe that such multilingual areas are more strongly visible in the archaeological record than the language areas, which are typically much smaller.

There is also linguistic heritage of local character that is helpful in identifying the languages spoken in a particular area in the past. Toponyms represent a special case of linguistic heritage in that they are fixed in a particular location both on a microlevel (for instance, pointing to a past dwelling or a cult site) and a macrolevel (revealing the historical spread of a particular language form). The authors of this article agree in that precisely because of its local character, toponymy is a type of linguistic material that has the most obvious correlations with the research material of archaeology. What is more, in a case of a language shift, a bulk of toponyms typically survives in the new language as a linguistic substrate, i.e., as an (often locally contained) lexical residue of an extinct language form. A layer of toponyms deriving from a certain language, more than anything else, provides the possibility to link a particular language with a particular geographical area in history with a reasonable degree of certainty (cf. Saarikivi 2007). As already noted, this is not the case with other types of lexical borrowings, which may have been relocated, together with the language form they belong to, from the area of their borrowing to other regions.

A toponym never describes a location as such, but denotes to it, i.e. its basic meaning is the place, not the semantic or lexical contents of the vocabulary from which it is derived (cf. Kiviniemi 1975; Ainiala 1997). Therefore, for utilizing toponymic material, an analysis of the naming patterns of the past populations is necessary. With the help of such naming models it is possible to partly reconstruct the ethnolinguistic world view and cultural knowledge of those people

who created the toponyms (cf. examples in Lavento & Saarikivi forthcoming). However, the problem with the study of toponyms as ethnogenetic material is that both the analysis of the structural types of the names, as well as the naming motivations can only be carried out when a substantial amount of geographical names from the same region are investigated simultaneously. In many cases such materials are not available. Notwithstanding this difficulty, results reached by analysis of only a handful of names are of much less convincing character, and stray etymologies for isolated toponyms from languages which are otherwise not attested in the region under investigation tend to be completely worthless.

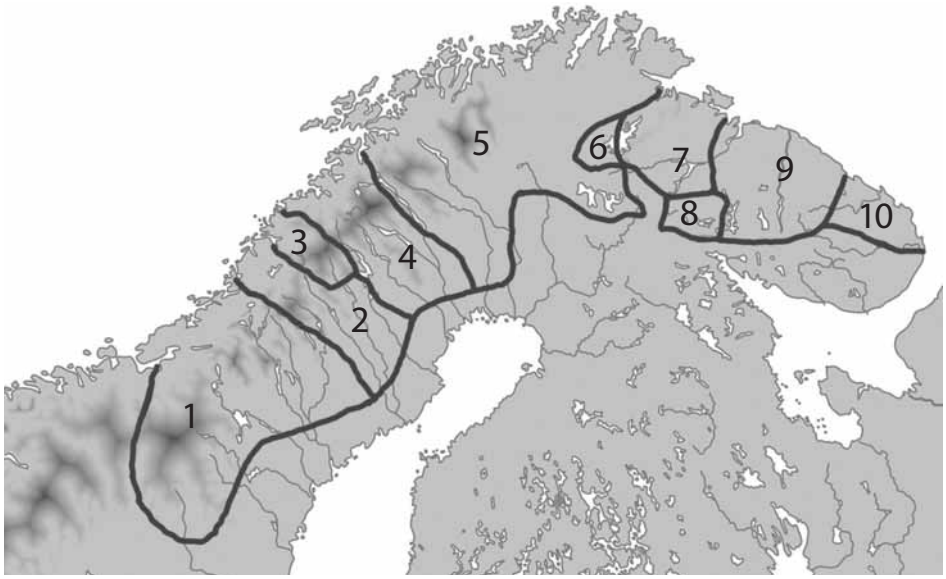
Archaeology

Archaeologists collect their basic research material in excavations and surveys and try to understand the attributes of the material and their variation in place, time and type. The methods employed include spatial, dating and classificatory approaches. Archaeological reasoning starts from the details – finds and sites – and proceeds from a local level towards communities, cultural areas and networks.

The first group of archaeological methods defines material objects in the context of three-dimensional space. The contexts can often be distinguished already in the field but this can also take place later by looking for the clustering of certain types of finds. The three-dimensional viewpoint also employs attributes that can be utilized in dating finds and sites. As a relative dating method, stratigraphy or shore displacement may be employed and the relative dates can be changed to absolute with the help of 14C methods or dendrochronology or some other natural-scientific dating method.

Further, archaeologists make an effort to understand processes inside the cluster of dwelling sites or at a single dwelling site. Here, the objective of research is the interpretation of sites, finds and their contexts. Archaeological research employs a variety of material details to reconstruct the past. A ceramic vessel, for instance, consists of attributes which imply information about manufacture, tempers, clays, forms and details in ornamentation. All these can be investigated in detail with the help of specific methods. The information related to such details is the substance which makes the understanding of the typology of artefacts and the distribution of artefact types possible.

The environment of particular archaeological sites can, in some cases, be investigated in the light of place names. As already noted, toponyms provide information on the language forms spoken in the area, on the forms of livelihood, religious practices and borders of the past population, as well as on the land use and cultural significance of the site. It is thus sometimes possible to interpret particular archaeological findings on the basis of their toponymic environment, for instance, when a particular location has been employed for sacral purposes and this is reflected in its name. Toponyms may also point to dwellings, constructions related to livelihoods (such as the reindeer hunting fences



Map 1. Distribution of the Saami languages.
1 = South Saami, 2 = Ume Saami, 3 = Pite Saami, 4 = Lule Saami, 5 = North Saami, 6 = Inari Saami, 7 = Skolt Saami, 8 = Akkala Saami, 9 = Kildin Saami, 10 = Ter Saami.

in the Saami context) and community borders. In many cases, toponyms can also be useful in developing the guidelines of archaeological investigation of a particular region. Some possible cases of such an analysis in the Saami context are provided by the authors of this article in another context (Saarikivi & Lavento forthcoming). However, this type of interdisciplinary approach is only possible to carry out regarding the relatively new archaeological periods. Stone Age sites, for instance, are so remote from present linguistic systems that there is little hope to interpret them in the light of toponymy that has been preserved in modern languages.

When comparing and locating finds in large areas, an archaeologist concentrates not only on the distribution of types. One of the main tasks in archaeology is to interpret the life of human populations in their ecological environments and the changes that take place in time in different forms of ecological and economic adaptation of the investigated region. This task is carried out with the help of the remnants of material objects that are investigated in their contexts. The researcher must observe the geographical and ecological context of the finds and be able to read the change of the culture in relation to the geographical and biological prerequisites of its existence. From a point of view of the linguistic reading of the archaeological material, it is worth noting, that language boundaries often coincide with ecologically definable areas. Thus, the areas of modern Saami languages are, in some cases, almost identical with catchment basins of rivers flowing to the Gulf of Bothnia (Lule, Pite and Ume Saami), or with the basins of large lakes (Inari and Akkala Saami, cf. Map. 1). Similar cases of ecologically determined language boundaries are to be found in many regions of the world, although, even in this case, the correlation is far from absolute and numerous counterexamples of ecologically complex language areas are also documented.

In the reconstruction of large-scale economic, demographic, ethnic and linguistic processes of the past, there are a number of difficulties related to the implementation of the archaeological methodologies. Therefore also the question as to how the language areas and spreading linguistic innovations are possible to observe in the remnants of the material culture is extremely complicated, as already noted above.

The idea that the archaeological remains of the past could be connected as archaeological cultures was first presented by Gustav Kossinna in 1911. This idea was then quickly adopted by other scholars and fairly soon archaeological cultures were considered identical with past ethnic groups. The development of archaeological typology offered positive evidence and they influenced the development of archaeological thinking up to the end of 1980s when the methodology developed. The role of implement types and typology was strong. Sites, graves and other similarities were found which further supported idea that archaeological cultures really existed (see Trigger 1989).

The definition of archaeological culture in both the traditional (culture-historical) sense and that of the so-called New Archaeology (processual archaeology with a focus on anthropological explanation of the finds) has always depended on many factors (Clarke 1968). An archaeological culture can be described as a complex of find types and sites that can be dated to a certain period and that occurs in a particular ecological area. However, the archaeological cultures that figure in scholarly literature have highly different characteristics. For this reason their comparison with each other is difficult. Usually, the cultures of the Neolithic periods are seen as more or less equivalent to ceramic types. However, coming to the Iron Age it is not possible to discover any easily definable ceramic groups. In these cases, the periods are defined by the time-scaling of historical sources (see in detail *Combining the Results: a Critical Account*).

The hypothesis that archaeological cultures are constructed on a material basis implies that similar archaeological finds represent an agglomerate of people who produced them. This led to the idea of the common ethnic background of these people but already this step remained problematic for many archaeologists and criticism regarding such an assumption was presented early on (Tallgren 1937; Allen & Richardson 1971; Trigger 1989).

The connection between material, ethnicity and language still remains unsolved. It can be stated that, in general, the archaeologists have too often solved the dilemma of the language and ethnicity of a past group by posing the hypothesis that the past languages correlate with archaeological cultures. It is reasonable to assume that, in many cases, language areas have little to do with the distribution of the typological groups constructed by archaeological analysis. It can be assumed that certain common words may have been in use to denote similar materials, types and artefact groups uncovered in the archaeological record in one language or a group of language but this is only an assumption which, in most contexts, is impossible to verify (cf. the discussion above under subtitle *Archeology*).

Common Methods or Goals?

As is apparent from the above discussion, there are no common research objects and no common methodologies for linguistics and archaeology. In the history of prehistoric investigation, various views have been expressed regarding the question how these two disciplines could be employed together in the interdisciplinary research of the past.

Already at the beginning of the 20th century the origins of the ethnic and linguistic groups were studied on the basis of archaeological materials. The scholars of this period were interested in the human anthropology and they used cranial material to determine the ethnic affinity of the past populations. Although such assumptions were seldom explicitly made, they also believed that the ethnicity and language were straightforwardly connected with each other and that a particular language was inherited within an ethnically definable group in the chain of generations unless something special occurred. Thus, it was possible to tell, on the basis of skull form, for instance, that a particular deceased person was a German, whereas another was a Saami.

In this period, the ethnogenetic processes were widely understood as migrations, and the ethnicities were typically considered as migrants from some other region. Thus, in the case of Northern Fennoscandia, Scandinavians were migrants from the south, and the Saami people were considered migrants for the east because of their Finno-Ugrian language and their physical characteristics (cf. in detail Hansen & Olsen 2004: 28–30).

In the latter half of the 20nd century, a more processual view of the origin of linguistic and ethnic groups gradually developed. Some of the most notable modern linguo-archaeological discussions centred on the origins and dispersal of the Indo-European language family. In his influential account, Colin Renfrew (1987) combined the spread of the Indo-European languages with the spread of agriculture in Europe. J. P. Mallory, in turn, building his argument on a long tradition of comparative Indo-European studies, united the origins of the Indo-European language family with the spread of horse, cart and wheel, all of which can be reconstructed in the Proto-Indo-European vocabulary (Mallory 1988). This concept has also been adopted by David W. Anthony (2007). Similar treatments regarding other language families have been provided on the Inca and Quechuan languages (Heggarty 2007, 2008), and on the Austronesian languages. Jared Diamond assumes that seven out of ten major linguistic expansions occurred in relation with innovations in food production, and two in relation with large-scale pastoralism (Diamond 2004, 398). Would this be the case, there would indeed be some type of an archeologically visible counterpart for all of them.

The opinions among the specialists regarding the credibility of such interdisciplinary syntheses differ widely. While some scholars such as those mentioned above, as well as Kuzmina (1994), Carpelan and Parpola (Carpelan & Parpola 2002; cf. also Carpelan 2008: 313–324) continue to be confident in that a

correlation between archaeologically definable areas and linguistic reconstructions can be established on ceramic types, the cultural or technological innovations that correlate with the reconstructed vocabulary of the protolanguages and a retrospective reconstruction based on the subsequently emerged linguistic situation, others are more sceptical. For instance, C. C. Lamberg-Karlovsky, in his discussion regarding the ethnicity and language of the Andronovo people of the Russian steppe, concludes that "contemporary methodologies, linguistic or archaeological, for determining the spoken language of a remote archaeological culture are virtually nonexistent" (Lamberg-Karlovsky 2002: 73). In a similar vein, the Altaist Denis Sinor considers it "impossible to attribute with any degree of certainty any given language to any given prehistoric civilization" (Sinor 1999: 396).

While such formulations are certainly exaggerated to some extent, it is worthwhile to note that the methodologies of linguistics and archaeology reconstruct the past groups in different ways. Resemblances between them should not be understood so that the two disciplines could have the same research object; rather they can be seen as analogies between different methodologies employing a similar spatial, typological, variational, semiotic and societal look at their material. Also, their results can only be made to combine via some third explaining force, such as the analogies of the behaviour of human groups in other contexts.

Thus, both linguistics and archaeology investigate the variation of units that have a geographical distribution and typological characteristics that change over time. It is a fundamental problem for both disciplines to identify the varying units, for instance, the archaeological types in different sites, or the instances of the common historical word stem in different languages and dialects. The units investigated by both disciplines are embedded in a system of other units that allows for reconstruction of the past local groups and their networks that spread technologies, raw materials, artefacts, religion, etc.

Both disciplines make a distinction between a cultural heritage that is transmitted locally and the type of a cultural heritage that is transmitted over long distances in different types of human networks. Further, both disciplines make an effort to understand the various semiotic meanings of symbols connected with ethnicity, or a local or religious identity. Conceptual systems have existed in the communities and their remains are visible at the sites and different types of archaeological material. The ideas of the world view and cultural identity of the people who belonged to the past populations rest on a reconstruction of a conceptual world view of the people who employed sites, certain artefact types and languages. This can be done on the basis of ethnographic analogies and the careful historical semiotic analysis of the cultural concepts employed by the past populations. This concept of the necessity of cultural reconstruction as a key to the interpretation of the archaeological material is stressed by Renfrew (2008).

The following tables illustrate some analogies of the methodologies employed in the historical linguistics and archaeology:

Spatial	Typological	Variational	Semiotic	Societal
locating sites	identifying types	describing variation of a type	investigating social memory related to sites and oral narratives	describing society around finds and sites
investigating human environment around sites	investigating use and development of a type	describing changes in type	identifying religious and ethnic markers	describing societal change
investigating finds and their distribution	investigating distribution of types	identifying autochthonous and contact induced change	interpreting meanings of the markers in finds	identifying the waves of cultural influence

Table 1. Archaeological methodologies.

Spatial	Typological	Variational	Semiotic	Societal
investigating distribution of the lexical items (words, toponymic types)	identifying the instances of same words in related or contacted languages; identifying languages	describing changes in words and their distribution	investigating the societal meaning of linguistic signs	describing a society that used a particular language form (on the basis of vocabulary)
identifying naming motivations and semantics of linguistic concepts; investigating their areal distribution	identifying changes in words and language systems; investigating the contexts of variants	identifying inherited and borrowed elements;	reconstructing the linguistic identities in the investigated context	locating and dating of (proto) languages

Table 2. Analogical linguistic methodologies.

It can thus be summed up that the linguistic and archaeological methodologies both approach their material by making assumptions on the human behaviour that caused its emergence. In this respect, they both depend on the assumption that similar developments recur in different environments. Also, interdisciplinary investigations of prehistory that make an effort to combine the results of linguistics and archaeology typically operate with the help of parallel cases from well-described contemporary cultural situations.

It is worth noting that such analogies can be conscious, so that an investigator interprets his / her materials with the help of better-documented cases or, and this is likely more often the case, they may be unconscious as, for example, when a modern nation-state model guides the interpretation of the past populations. While the analogies from more recent periods and the ethnographic record may be helpful in interpreting past events, it is also often the case that they are misleading because all the historical series of events have unique characteristics that cannot be tackled in the light of analogies. In order to successfully understand

past ethnogenetic processes, analogies are thus necessary, but often insufficient. They should not be considered as a key to investigating past populations but as a helpful and necessary tool for cultural reconstruction along with context-specific palaeolinguistic, toponymic and archaeological material.

Needless to say, perspectives for such a reconstruction are often fairly restricted. For instance, from the point of view of combining the methodologies of linguistics and archaeology, it would seem to be a fruitful idea to evaluate the social events visible in the archaeological record and to interpret them from the point of view of historical sociolinguistic situations. Ross (1997) speaks of 'speech community events' that, in principle, can be reconstructed to some extent on the basis of archaeological material. While such an approach is promising in principle, the problem remains that similar social process may have different linguistic and material outcomes in different contexts. For instance a merger of two communities may lead to a situation where one language becomes popular in the new community and the other language disappears, or two languages may continue to be used in a bilingual community. If the languages of the two communities were closely related, even a merger of two languages into one may take place.[3] Also, in the contact of two linguistic communities, the borrowing of vocabulary and other linguistic features is sometimes very active, whereas in other cases of very intense population contact only moderate borrowing is discernible (cf. Thomason 2001: 70–73). The linguistic choices of a language community leading to language change, or language shift and loss are guided by very complex networks and identities that are difficult to understand even in the present time when an investigator has all the sociolinguistic data available, not to mention past periods, the social circumstances of which are only very fragmentarily documented (regarding the social reality behind language shift modern contexts, cf. Labov 1972; Milroy 1992).

Chronology is a dimension necessarily embedded in the investigation of prehistory, whether linguistic or material. The effort to create an absolute chronology to be as accurate as possible is one of the central aims in archaeology. For this reason, archaeology also utilizes a large variety of natural sciences that can help in reaching such a goal. In historical linguistics, however, the chronology is relative and the changes in language are dated with respect to other changes.[4] Thus, the absolute chronology for linguistic shifts and changes is usually created by combining language data with the ethnographic, historical and archaeological record. An example of this would be the dating of a particular layer of vocabulary with the help of the archaeological material that includes the

3. Although it might not be possible to define a merger of two languages in a satisfactory way, there are grounds to believe that, in most cases, various linguistic processes only take place in a contact of two closely related languages, and almost never occur in a contact of languages that represent very different typological characteristics or different phyla. Such processes include widespread borrowing of inflectional morphemes and morphological processes.

4. There have been attempts to create different types of absolute chronologies for linguistics on basis of so called glottochronological methodologies. Mainstream linguistics has remained sceptical regarding the results that are to be achieved by such methodologies.

artefacts that it denominates (examples below in section *Combining the Results: a Critical Account*). This functions well in principle, as long as we can be sure that we can linguistically identify the communities that employed the artefacts. As already noted above, this is regrettably often impossible. In practice, most of the linguistic phenomena are given more or less vague datings in an interdisciplinary framework of facts, and the older the phenomena are, the less reliable the dating becomes.

Combining the Results: a Critical Account

Combining the Results: Traditional Views

Most of the scholarly literature that seeks to combine archaeology and linguistics in the interdisciplinary study of prehistory represents some common characteristics. As already noted, most scholars have been striving for areal synthesis and been looking for the past areas of present ethnicities and their predecessors, past language areas or made an effort to identify archaeological cultures linguistically. As is obvious from the aforementioned, such an approach neglects many aspects of both linguistic and archaeological investigation and often operates with ethnic concepts that derive from neither archaeological nor linguistic material.

Although something of an oversimplification, the basic assumption regarding correlations between linguistic, archaeological and ethnic entities in such a traditional research approach can thus be presented by the following scheme:

language area
↕
archaeological culture
↕
ethnicity

There are various problems related to such an approach, even if the correlations investigated would be understood as more or less relative. Such problems are related to the concepts of language area, archaeological culture and ethnicity alike and they are briefly scrutinized in the following.

Archaeologists are usually able to distinguish the borders of large areas with the help of some material group. However, it is much more problematic to find out whether the groups investigated were uni- or multilingual or to establish past language and ethnic boundaries between them. A group defined with the help of the archaeological material may have employed one, two or several languages. Their language(s) may have received borrowings and grammatical

interferences from other linguistic groups through various networks, from the neighbouring groups, or over long distances via trade and exchange routes. Although one is inclined to think that a substantial cultural change visible in the archaeological material always represented at least some linguistic change (cf. Carpelan 1999: 249–251), it is hard to attribute particular material changes to language shifts, for instance, and the other material changes to spread of loanword layers and morphosyntactic interferences. This is due to the fact that languages spread differently in different contexts (cf. in detail section *Language Spread as a Problem of Archaeological Investigation*).

Language communities have very different social characteristics. Some languages are bound to a particular group of people in the community, such as the upper class, whereas other communities have a minimum amount of social hierarchy and linguistic differentiation. There are multilingual communities that routinely use a particular language in a particular communicative context and another language in another context. And even if a language would be spoken in a relatively homogenous community, one needs to have a theory of language spread in the given context in order to find counterparts of the changing language areas in the archaeological material.

Linguists are well aware of the fact that there is no single way that languages spread and that the spread mechanisms differ in space and time even in the case of a single language. Language areas change by both expansion and relocation and it is quite typical that a present language map of a particular region is a result of relatively recent developments. It is also widely known that many languages have previously been spoken in other areas than at present (cf. Janhunen 1999: 200 for cases in Northern Eurasia). Both migrations and language shifts cause the expansions and relocations of language areas and it seems to be the case that the latter process is, most likely, the more important one, at least in the Eurasian context.

Language shifts typically spread languages over culturally significant boundaries and they thus become adapted to new ecological and cultural environments. Remnants of earlier languages of a particular region can, in such a case, survive as linguistic substrate, i.e. a residue of the earlier language of the region that is to be discerned in the place names and the lexicon that is related to local concepts such as the names of geographical features, flora, fauna, etc. (cf. Saarikivi 2000). From an archaeological point of view, however, the result of such a spread is typically a language area that is culturally not homogenous. If the language spread vertically, i.e. by a language shift, few traces of migrations are likely to be attestable. This question is discussed in detail by Anthony (2007: 108–115). This reminds us of the fact spread of a language is not necessarily accompanied by the spread of new materials, artefact types, technologies, dwelling patterns, etc.

For the Saami context, a relatively recent language shift of a pre-Saami population to Finno-Ugrian has been proposed on the basis of toponymic data and areal linguistic argumentation (Aikio 2004). However, there is no doubt that

the modern Saami groups, in a way or another, continue the cultural traditions from their non-Finno-Ugrian speaking predecessors and that they had, at the beginning of the 20th century, still retained some forms of livelihood that were characteristic of the Neolithic and Early Metal Period inhabitants of Northern Fennoscandia, such as small-scale nomadism and probably also archaic forms of small-scale reindeer herding. In a similar manner, south of the language boundary, in an area where Finnish dialects are spoken (from the 18th century onwards), many features of the Saami material culture and forms of livelihood (such as reindeer herding) prevailed even after the language shift to Finnish.

Language Spread as a Problem of Archaeological Investigation

From the point of view of language, the basic problem of the traditional research approach based on areal correlations of language and material culture is that the historical sociolinguistic information regarding the past language communities is typically very restricted. Therefore, it is often impossible to know what types of communities and mechanisms of language spread archaeologists should look for in their research material. As already noted, this is in stark contrast with the fact that the inner history of languages under investigation may, in fact, be fairly well described.

A speech community is almost never a homogenous entity. Typically, it consists of people speaking various dialects, sociolects and idiolects, and it is often impossible to indicate strict geographical boundaries for dialects and languages. There may also be different language groups within a single ecological zone or within similar cultural networks. Typically, these practice closely related forms of livelihood, employ similar raw materials, technologies and artefacts, etc. Needless to say, in such a case, it will be problematic to indicate language borders within the archaeological material.

John Terrell (2001) points to the northeastern Sepik coast of Papua where different groups "share a common pool of resources, material products and cultural practices" (ibid., p. 206) but engage in most multilingual social networks and typically master several languages. Despite intensive and far-reaching cultural contacts, no commonly used *lingua franca* has emerged in the region. In a similar vein, David W. Anthony lists examples from American and Pacific regions and concludes that "tribal languages are generally more numerous in any long-settled region than tribal material cultures" while, at the same time, "a homogenous tribal language is rarely separated into two very distinct bundles of material culture" (Anthony 2007: 104–105). He thus makes the assumption that persistent cultural and ecological frontiers have, most likely, also been linguistic borders. While such an assumption is certainly in place in some contexts, the Saami case would seem to be something of a counterexample to his claims in that in Northern Fennoscandia several culturally discontinuous language areas are to be attested. For instance, the culturally very different fisher Saami on the Norwegian Ice Sea coast and the reindeer herders of the inland still speak fairly

closely related dialects of a single Saami language (Northern Saami), although linguistic variation within the Saami groups is generally fairly broad. However, there would seem to be some grounds to suggest that Northern Saami has, at least in some cases, replaced other types of Saami languages on the Ice Sea coast although detailed investigations on this matter are not available. In a similar manner, across the materially fairly homogenous culture of the inland taiga zone there emerged in the 17th–18th centuries are language boundary between Finnish (and Karelian) and the Saami languages.

Furthermore, the role of the language as a social emblem, or bearer of ethnic identity seems to be radically different in different communities. As pointed out by Nichols (1999) there has likely been much less correlation between ethnic and linguistic identity in the Eurasian steppe zone than in historical Europe, both in the antiquity as well as the modern times. This is reflected in that the raids led by the Turkic-speakers (in the 9th and 10th centuries AD) ultimately spread an Ugric language (Hungarian) to Europe, and that the raids led by the Mongolian-speakers (in the 13th century AD) mostly spread Turkic languages. In a similar manner, the oldest literary sources regarding the Russian state point to a multilingual *Rus'* ethnicity based on a trade network that operated between inner Eurasian and Baltic markets and united Slavic, Scandinavian and Finno-Ugrian groups (Lind 2007). This is also reflected in that the population of Novgorod was linguistically mixed and, in addition to Slavic-speakers, consisted of Finnic and Scandinavian speakers (cf. Saarikivi 2007b). This is, in fact, characteristic of most of medieval European cities. (Regarding the archaeological material reflecting the merger of Slavs and Finno-Ugrians, cf. Rjabinin 1997; Makarov 1997).

Homogeneous and Long-Lasting or Versatile and Fluctuating Communities?

In the light of the archaeological material, the Northern Fennoscandian communities occur as fairly stable over long periods (Halinen 2005). It has also been often assumed that the linguistic multitude of present period, (i.e. the present nine [until 2003 ten] living Saami languages, Map 1), derive from a linguistically more homogenous past. This point of view is also reflected in many studies that stipulate that Proto-Saami, or even Proto-Uralic, would have been spoken in the speaking area of present Uralic languages for thousands of years and gradually split up into the present languages (cf. Sammallahti 1995; Sammallahti 2001; Wiik 2002).

However, if one turns to ethnographic analogies, it seems to be the case that language communities of the hunter-gatherers (and hunter-fisherers such as the Saami people) are typically of relatively small size. This state of affairs would seem to hint that also the linguistic past of Northern Fennoscandia was more diverse than at the present time and that there were many language groups in this region in the early prehistoric periods. Such a state of affairs would be in line

with the reasoning presented by Janhunen that the Stone Age linguistic communities were fairly small and the language families were numerous but small (cf. Janhunen 2008). Again, this is a purely linguistic conclusion on the basis of analogies from other regions, most notably Siberia (which is both ecologically and demographically fairly similar to Northern Fennoscandia). No traces of such Stone Age diversity, however, are discernible in the archaeological material. The Fennoscandian archaeological data from the Stone Age point to local communities that, from the point of view of material culture, have employed similar raw materials, artefact types and technologies over a large area.

Another and perhaps also more fruitful way of reasoning is to begin the archaeological research with the small entities and try to examine contacts between individuals through finds. The hierarchy between individuals defined their level of importance in the community and exchange systems typically operated between people at the top of the hierarchy. Among the archaeological material examples of rare and valuable objects are to be found which did not belong to all members of the society. In the case of the Saami living area, the valuable objects were coins or guns, for example. In the material culture, the distribution area of some find types is seen today as a past exchange network.

The populations that lived in Northern Fennoscandia and on the Kola Peninsula during the last 4,000 years offer the investigator various cases of documented cultural change. Already in the Early Metal Period (ca. 1900 calBC–250 calAD) but especially in the Saami Iron Age (250 calAD–750 calAD), the number of finds and sites is relatively small and the local populations during the period are poorly visible. The groups of this period are visible for an archaeologist only in the rectangular stone settings. Stray materials or artefact finds such as tinder flints are of minor information value from the point of view of identifying ethnicities. Pieces of metal (copper) plates cut into the form of arrowheads represent new practices during the late Iron Age. Although they are characteristic of the prehistoric groups in the Saami area their origin may reflect contacts with groups in the large area – with the forefathers of the Swedes and Finns, as well as the Karelians, and other Finno-Ugrian groups.

The visibility of the groups increased during the late Iron Age (750–1300 calAD) and during the Middle Ages (1300–1550 AD), in particular. In these periods, there appeared hearths and wooden remains of *goahti* (tent) dwellings which are visible at the sites. Apart from reindeer bones the sites are not rich in finds. Despite this, some find types connect the sites easily to certain periods and the distribution areas of finds indicate interesting characters of the network operating at different levels of the societies. In archaeology, this can be seen as the change of material. It is possible to distinguish spoons made of bones if the individuals in the groups left their visible marks on them when making them. However, a typology of this kind has not been done so far by archaeologists.

The winter villages of the 15th and 16th centuries indicate localities though the find material found in the excavations elucidates the local groups poorly. Local groups have naturally been visible also earlier although archaeologists are

not able to discern them easily. For instance, small iron knives resembling the modern fruit knives are visible at many of the sites, but the local Saami groups did not produce them. Their distribution area is large including the northern part of the Baltic Sea. The origin of this artefact type is thus not in northern Lapland but somewhere else and the knives represent a network that worked between the small group of active merchants and tax collectors and the locals and delivered the material from the southwest part of present-day Finland to the north (cf. Figure 1.)

Figure 1. Small iron knives ("fruit knives") from Nukkumajoki 2 winter village. Photo: Markku Haverinen, 2002. National Board of Antiquities, Finland.

Although archaeologists investigate first and foremost material culture, all kinds of data related to societies of the past are employed in the interpretation of the material remnants. The communities themselves are visible in remnants of the dwelling sites, but the fact that some neighbouring communities speak closely related dialects, while there is a language boundary across another community border is practically invisible in the archaeological material (cf. in detail Lavento & Saarikivi forthcoming). No general find types that could be used for separation of the emerging local Saami language groups are identifiable. In the archaeological material it is very hard to make a distinction between the find materials from different sites so that they would be explicable as linguistic boundaries. Notwithstanding this state of affairs it is fairly clear that the development of Proto-Saami into separate Saami languages in Northern Scandinavia, Finland and the Kola Peninsula occurred during the Late Iron Age, the Middle Ages and historically recorded times. It is also evident that this process involved a significant language shift among the people who spoke extinct Palaeo-European languages that can only be recorded in denominations of geographical features, flora, fauna and toponyms in the modern Saami languages. There would seem to be very few possibilities to

give an absolute dating for such a language shift but at least we can be sure that in the 15th–17th centuries, the immediate predecessors of modern Saami languages were spoken in a number of Saami winter-village-based communities.

The process that changed the societies in large areas began already in the second half of the Iron Age as a result of migration from the SE and S parts of Finland to the north and it also proceeded when the Saami bands adopted new ways of living. Spread of cultivation influenced in the middle part of Finland during the 8th–17th centuries AD, caused changes in the communities and influenced their borders. It developed a new type of division of labour between the agriculturalists and their northern neighbours. The reindeer pastoralism that developed to produce a large number of reindeer products for the European market did not reach northernmost Lapland until the 18th–19th century. This caused a series of economic changes in the eastern Saami communities because the wild reindeer disappeared. The people were forced to go over to semi-sedentary settlement, typically based on different summer camps, inland fishing or small scale reindeer herding.

The boundary between the Saami communities, on the one hand, and the Scandinavian and Finnic-speaking communities, on the other, is discernible in the archaeological material. For instance, the period of late Iron Age is clearly visible in the Southern and Southwestern Finland but in Lapland the material from the period is very limited (cf. Map 2). This difference continued to exist in the Middle Ages (1200–1550 AD). It seems reasonable to believe that the Early Iron Age settlement on the coastal zone of the Baltic Sea had a considerable role in the spread of the Finnic language form into the area of present-day Finland. From the 17th century onwards, permanent settlement becomes visible in all parts of Finland.

In inland Finland and the area between Lake Ladoga and Lake Onega, as well as in Ingermanland, the merger of hunting-fishing populations and cultivating populations took place during the second part of the Iron Age and in the early Middle Ages. It occurred in a different manner to the western parts of the country. The material culture and languages that developed in Karelia emerged within framework of the language shift of the Saami populations to Finnic (the fact that there were Saami or "Lapps" in this area is documented by history and folklore). Evidently, agriculture became the main form of subsistence in this region and this dramatically changed the societies and moved the border between the hunting and fishing Saami groups and the agriculturalists to the north (Korpela 2009; Korpela, this volume).

These developments can be regarded as process of relocation of the Saami languages from a taiga zone (where they originate) to a semi- tundra and tundra zone. However, it would seem to be the case that, once again, the main mechanism of the relocation was a language shift (with some migration from south to north). In this respect, it is worth noting that a similar medieval relocation from taiga to tundra seems to have taken place even in many other Uralic-speaking contexts including the Ob-Ugrian and Samoyedic languages of Western Siberia.

Ethnicity in Language and Material Culture

Ethnic identities are central signifiers of human groups everywhere. Therefore, it is understandable that an approach that explores the history of present-day ethnicities has not lost a certain appeal, despite all the difficulties related to it.

A critical scholar acknowledges that it may not be possible to define ethnicities even on a present-day level. Ethnicity is a fluid concept sometimes associated with language, sometimes with a form of livelihood, kin, origin, area, etc. Ethnic identities are subject to situational and network-based variation, and often perceived differently by different groups and individuals. In ethnographic research since Barth (1969), ethnic identities have been considered as boundary identities emerging in the process of defining the groups both by the people belonging to a particular group, as well as their neighbours. Such community borders are constantly negotiated or constructed anew, and this means that also the role of both the linguistic as well as the material emblems in them is not stable.

Due to its character as an ever-changing boundary-related phenomenon, it is very difficult to find any material group that could be easily used as a general indicator of ethnicity. This is true of the ethnographic and the archaeological material alike. Ethnic and linguistic identities often have certain material emblems (such as details of dress, or ornaments in buildings) but these are hard to identify in material related to the distant past. The characteristics of such emblems are often small features and when the relevant ethnographic information is lacking, it is virtually impossible to interpret the archaeological materials in ethnic terms on the basis of such emblems. In more recent periods, however, ethnographic analogies can be used for such a purpose.

In the history of archaeology, it has often been assumed that there is a certain correspondence between ceramic types and ethnic groups (cf. Carpelan 1999, 249). It has been argued that the pottery was mostly produced by women who resided in a particular location more permanently than men who were engaged in hunting and fishing. It has further been believed that this explains the stability of ceramic types over several hundred years. However, on the basis of the ethnographic record from hunter-gatherer communities, it is obvious that it was mostly women who changed their ethnic group through marriage. It has been assumed that the girls who changed their ethnic group learned already in adolescence many practical skills from their mothers-in-law (Arnold 1993). This assumption is supported by anthropological observations from several contexts.

Furthermore, ethnographic analogies from present communities seem to suggest that the role of ceramic types as an expression of identities varies widely in different contexts. For instance, Gosselain (2009) conducted a survey on correlations of ceramic types, ethnicity and language in southern Niger and found out that most of the innovations in pottery are transmitted over ethnic and linguistic boundaries and that no ethnic ceramic types are to be discerned in this area. However, he also found out that a certain correlation between ceramic types and ethnicity exists in Cameroon (Gosselain et. al. 1996).

In the case of the Saami groups, research can attest various types of ethnic identities depending on perspective. For Scandinavian and Finnish newcomers to this region the main ethnic division line was that between the newcomer ethnicities and the Saami. It is an open question, however, as to which amount traces of common Saami identity can be attested among the Saami themselves prior the emergence of the modern Saami identity in the 20th century. On the basis of the ethnographic record it seems clear that the Saami people regarded different Saami groups as different ethnicities for a long time. The modern Saami identity unifying different groups consolidated in a new situation where nomadic Saami groups came into contact with the culturally increasingly dominating Scandinavian and Finnic groups. Simultaneously, many areas where some type of Saami ethnic and linguistic identity had prevailed became subject to colonization activities within the Swedish state. The Saami groups in these areas became Fennicized both linguistically and ethnically. However, the fact that the Saami languages and also the ethnonym of the Saami originate in the Proto-Saami language that, with all likelihood, must have been spoken by a relatively small community in an area much smaller than present-day Saamiland (likely somewhere south or east of the modern Saami-speaking area), points to the fact that there had a kind of linguistically definable single Saami group somewhere in the past. However, one should be cautious in establishing links with such a past group and modern Saami ethnic identity.

The concept closest to ethnicity within the traditional Saami communities was the winter village based groups, the *siidas* (cf. Itkonen 1948; Carpelan 2003). These units had just (maximally) a few hundred members each but the membership and the borders between the siidas were respected by other communities and this type of ethnic identity was often also emblemized by a particular type of clothing. Land resources were divided between siidas and, within them, between individual families (cf. Itkonen 1948; Hansen and Olsen 2004). Marriages and kinship relations over siida boundaries were common and kinship likely played an essential role in the organization of the intergroup relations. Typically, a few neighbouring siidas spoke a common language and the language boundaries, where they existed, coincided with the siida borders. However, most of the siida borders were just dialect boundaries (with sometimes very little linguistic diversification). The fact that in just one case (the Inari siida and the Inari Saami language) there is a straightforward correspondence between the siida borders and the language borders hints that the differences between the Saami languages probably reflect some other type of community structure that existed prior the siida system. It also points to the fact that the division of people and land between the siidas is likely a relatively new phenomenon, probably a result forced by taxation (cf. also Lavento & Saarikivi forthcoming).

The changes evidently took place inside and between the siidas. There is evidence of the collapse of at least one winter village based community and the merger of two communities into one (in Inari, cf. Viinanen 2006). In addition, people who crossed over the community boundaries likely initiated linguistic

changes. Both men and women changed the groups in which they lived (cf. Hansen in this volume). It is likely that this also influenced their ethnic identity (at least as discerned by the other people). When people crossed the ethnic and linguistic boundaries, new ethnic identification problems must have emerged. A person previously regarded as Saami, for instance, may have adopted a Finnish or Scandinavian identity. Some members of his former community may have opposed his new identity choice, and probably continued to consider him or her as a member of the previous group. The collective identity and ethnicity were in flux all the time (cf. Hodder 1982; 1986).

It is quite clear that if the ethnic units of siida size prevailed among the Saami even in the more distant past, all kinds of changes must have occurred that had immediate effects on such small groups. Diseases or hostilities between communities may have reduced the number of individuals in such groups. Those who survived likely became members of other groups and adopted their speech habits and other possible ethnic emblems. Most changes of this kind must have taken place without leaving any remnants for archaeology or linguistics to investigate.[5] Some linguistic variation, for instance, closely related but irregular sets of false cognate words may derive from extinct dialects from which only a handful of words have been preserved as borrowings in other closely related language forms, but this remains an assumption.

Local Groups with Established Boundaries – and Their Long-Reaching Networks

Archaeologists now widely agree that a continuous inner change of cultures and groups occurred throughout centuries in Northern Fennoscandia. The geographical borders between Saami groups have been interlocked and changing in both the synchronic and diachronic sense. In classifying the archaeological material, the researcher can suggest models constructed on the basis of entities which are stable (e.g. grave types) or which have remained visible in the form of fragments of the material objects of various kinds. The problem for archaeologists is to find such qualities that could really indicate groups and ethnicity.

As is obvious from everything discussed above, most of the material entities do not necessarily distinguish the territories between ethnicities but instead distributions of the exchange networks of the artefacts, raw materials and technologies. However, it may still be assumed that the borders between ethnic groups were apparent to those people who were members of a particular group in the historical context in which it existed.

5. We could, however, note that many of the Northern Saami-speaking communities most probably used some other Saami languages in the past. This is notable in the substrate phenomena that can be attested in the phonematics, lexicon and place names alike. This kind of a language shift or merger is understandable in that the Northern Saami speakers dominated the networks related to trade with reindeer products and in that their group invented nomadic large scale reindeer herding in the late Middle Ages.

Many archaeologists believe that fixed territories with borders recognized by several groups may have existed in Northern Fennoscandia (Carpelan 2003: 68–70). However, the problem remains how to find and define the relevant groups in the archaeological material. The remains of the material culture are related to several groups, some of which are better observable than others. A stronger ethnic group often masks the "visibility" of a smaller one because of its active production and distribution of material. A group thus covering other local groups with its material is not necessarily a large one. It can represent an active trade or exchange network. Some well-visible products may be discovered in archaeological excavations with the result that many other products that would better indicate ethnicity remain less visible.

The Skolt Saami groups offer an example of a population where a great variety of cultural characters connect the group with different networks and waves of cultural influence. They are an example of a community mixing impulses from different directions and living in between the western and eastern cultures that influenced their religion, contacts and language. The linguistic boundary between the Inari Saami and the Skolt Saami can probably be considered as one of the deepest in the whole of Saamiland from the point of view of mutual intelligibility. In the 20th century, the ethnic border of the Skolt Saami, on the one hand, and the Inari and Northern Saami, on the other, was generally felt among the Saami. In the historical period the Skolts constituted a clearly discernible group due to their Orthodox faith that distinguished them from their Northern and Inari Saami neighbours who were Lutheran. The same cultural division was also reflected in their trade networks that were orientated towards Russia whereas the Northern and Inari Saami were predominantly orientated towards Sweden/Finland and Denmark/Norway. The Skolt Saami economy was based on both maritime and inland resources. Those who utilized the resources on the coast of the Arctic Ocean had their resource areas both on the coast and in the inland. Some individuals coming from the inland had difficulties in adapting themselves to the coastal zone.

Despite being such a clearly definable group in the historical period, the existence of the Skolt Saami is not easy to distinguish from archaeological materials alone. There is no individual material type that could indicate it during the Saami Iron Age or even later periods. Neither is there any clear indication that the Skolts in different siida*s* would have considered themselves a single ethnicity.

The number of Skolt Saami increased considerably during historically recorded times. A hundred years ago, this population consisted of several groups within seven siidas. In addition, the Akkala Saami group that has been linguistically classified as a separate entity displayed considerable similarities with the Skolt Saami groups. Linguistic differences between the Skolt Saami groups existed but were relatively minor in comparison with the differences between the Skolt and the other Saami populations. It is not entirely clear how the linguistic differences between the Skolts and the other Saami groups emerged but there are indications that in some past period there must have been a considerable distinction either between the networks or the inhabited area of the Skolts

and the other Saami groups.[6] As already noted, no corresponding archaeological material is available, however, as proof of such differentiating networks of the forefathers of the Skolt Saami.

Examples of Correlations

Three Main Correlation Types

The above critical analysis of possibilities for combining linguistics and archaeology in the study of Northern Fennoscandian prehistory is now followed by a discussion of the correspondences that could, in principle, be found in materials pertaining to the prehistory of the Saami.

In another paper by the authors (Lavento & Saarikivi forthcoming), the following scheme is presented that illustrates the correlations between archaeological and linguistic material at different levels.

	Location	Community	Network
ARCHAEOLOGY	site	cluster of sites ecological area	material technology type
LINGUISTICS	toponym cluster of toponyms	speech community	borrowing cultural vocabulary

Table 3. Three levels of correlation between archaeology and linguistics

The scheme makes a distinction between three levels of correlation between archaeological and linguistic material: a local, a community-based and a network-like correlation. Examples of possible correlations are given in Lavento & Saarikivi (forthcoming).

It is important to note that the human networks that spread languages and the networks that spread linguistic features are often fundamentally different. In terms of Nichols (1999: 227), languages and vocabulary spread along different trajectories. For transmitting a layer of vocabulary, for instance, a cultural contact is needed that spreads materials, artefacts, technologies, beliefs, etc. The fact that alongside such cultural innovations also the vocabulary related to them spreads has been one of the key assumptions in historical linguistics already for more than a hundred years (*Wörter und Sachen*). For transmitting an entire language, however, people also have to move, at least to some (sometimes very lim-

6. Siida is a designation of a traditional Saami community that resided together in the winter time in a winter village (approx. 100–200 individuals). It was a taxation unit (tax collecting occurred while the whole band resided together in the winter village). In addition, the land resources (reindeer pastures and hunting grounds, lakes for inland fishing) were divided between the siidas. The siidas seem to have been autonomous units of a kind until the beginning of the 18th century (see Korpijaakko 1989 for details). Around 40 siidas are known historiographically (S. Aikio 1985; Itkonen 1948).

ited) extent. As noted by Nichols (ibid.), the trajectories spreading languages in Eurasia often stretch from east to west in a region where there are no significant geographical constraints for the movement of people. The loanword trajectories, in turn, often stretch from south to north, from the cultural centres towards peripheries. In the case of the Finno-Ugrian languages it can be noted that this trajectory has subsequently also served as a trajectory for language spread.

While the authors are optimistic about finding networks of material culture that could correspond with the loanword trajectories, they are more sceptical about establishing the language boundaries. The correspondence most often sought in ethnohistorical research, i.e. between a language area and an archaeological culture, is lacking in the scheme. The authors assume that in the best possible case, when a past community can be established with a reasonable degree of certainty, it is more likely to correlate with a speech community than a language area. A speech community, in turn, represents a uni- or multilingual population of a particular settlement, or group of settlements. Large-scale archaeological entities such as archaeological cultures, in turn, are more likely to correlate with multilingual *Sprachbunds* than language areas. An archaeological counterpart for a language area, in turn, may be difficult to establish, at least in many Northern Fennoscandian contexts.

How, then, could these possible correlations of linguistics and archaeology appear in a particular context? For instance in Inari, the following types of correlations could, in principle, correspond to those presented above:

Location	Community	Network
Remains of winter villages in Nukkumajoki	Winter village of the Inari Saami	"fruit knives"
A standard toponymic environment pointing to a continuous settlement (?)	Present-day Inari-Saami speaking community (that employed the winter village)	Network transmitting artefacts and their names (Scandinavian, other Germanic borrowings?)

Location	Community	Network
The Nángunjárga hoard	far away from dwellings (Map 3)	necklaces, eastern metal artefacts
Toponymy pointing to a wild reindeer hunting region	The community used the area for seasonal hunting activities (Figure 3)	network connecting the Saami to other Finno-Ugrian groups in the east

Tables 4–6 illustrate examples of the correlations between archaeological and linguistic entities on the basis of material related to the prehistory of Inari (see Figures 2–3 and Maps 2–3).

Location	Community	Network
rectangular stone settings in Siuttavaara	similar settings in Finnmark, northern Finland and Kola Peninsula	rectangular stone settings of the Siuttavaara type, dating between 800–1400 calAD
toponymic environment pointing to present mixed economy-based northern Saami inhabitation (with eastern Saami substrate), not necessarily related to stone setting	present-day (but not the historical) Saami speaking area (Map. 1)	network connections between the Saami, Viking and Fenno-Ugrian groups

In Table 4, different types of correlations are established around an archaeological site complex on the River Uáđđivei (Fi. Nukkumajoki). This is a central archaeological site in Inari representing remnants of many winter villages that were in use in a period reaching from the 15th to the 17th centuries AD. It is notable that this abandoned central dwelling site is not pointed out by a toponym denoting to settlement. The Saami word for winter village *siida* is present in the Inari Saami toponymy but it points to borders between the old winter village based communities, not to the winter villages themselves (it is somewhat uncertain though if the Saami name of the river *Uáđđivej* 'sleeping river' would in some way be connected to a winter settlement). The site of the winter village is discernible in the toponymy through the lack of names pointing to any special features of land use, or past events. For instance, no names indicating notable fishing or hunting activities, use of land by particular people or names derived from past events are to be found in this region. This points to the fact that the Inari people resided in this area continuously and likely did not share the resources of its immediate vicinity among the families.

The finds from the site are not remarkably different from other winter villages known for archaeological record in the Northern Fennoscandia. These include the "fruit knives" that are originally of central European manufacture and characteristic of several sites in Northern Fennoscandia (Carpelan 2003; 74). They point to a network that has transmitted goods from the Baltic Sea region to the north. From a linguistic point of view, such networks can be discerned in that there are numerous loan words pointing to goods of European innovation and import ('bullet', 'silver', 'gold') all of which are of Scandinavian origin. In Swedish and Norwegian, in turn, such words are often borrowed from Low German, the main language of the Hansa that dominated the trade networks in the Baltic Sea basin.

From the point of view of the identification of the past languages it is important to note that the idea of Nukkumajoki settlements has belonged to the predecessors of the modern Inari Saami speakers is based entirely on the ethnographic knowledge that derives from historical period. In other words, we know that this is the case, because Inari Saami language is spoken in the area

at present. However, the finding material in the winter villages is not different from that of those winter villages of the same macroarea which subsequently appear in the Skolt Saami or Northern Saami speaking areas. This is the more important taking into account that both the livelihood related differences between Inari Saami, Northern Saami and Skolt Saami communities in the ethnographic record are very significant (cf. Tanner 1929; Itkonen 1948) and that these communities speak different (though related) languages (see in detail Sammallahti 1998).

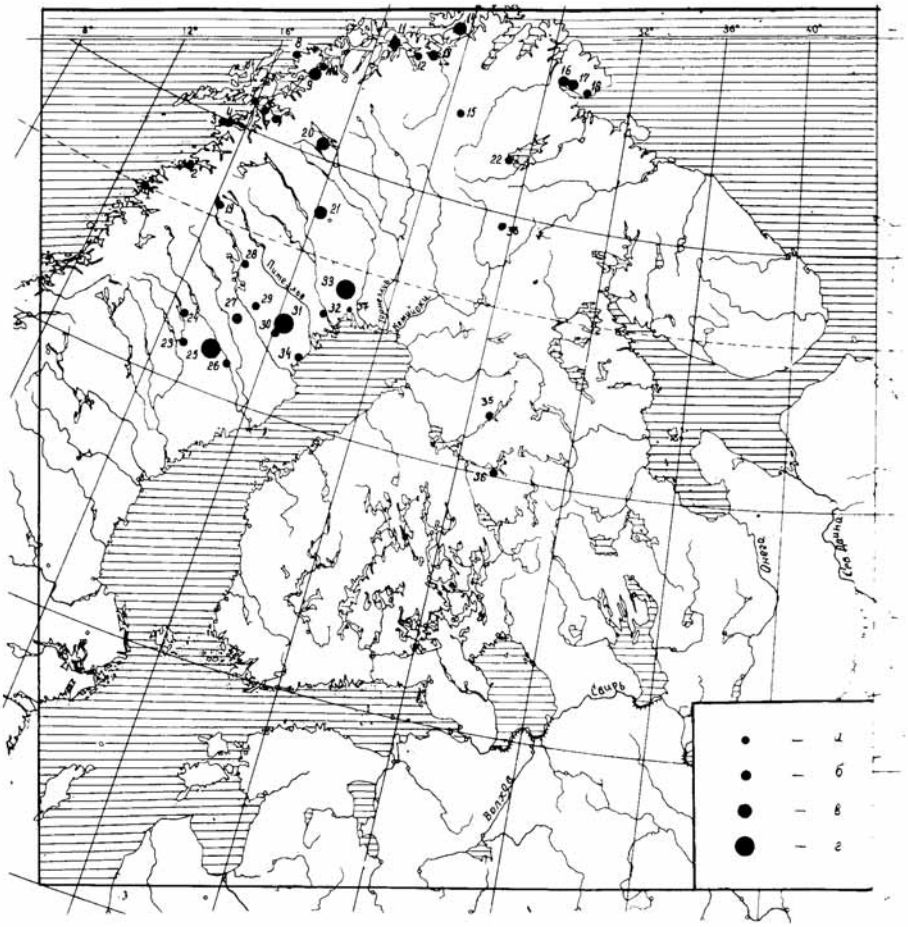
The finds from Nángunjárga are of an entirely different character. Here a rich hoard was uncovered with several notable metal artefacts of eastern manufacture (Figure 2). It belongs to the types that spread between ca. 800–1200 in the northern coniferous zone as a result of increased activities (Makarov 1992, 1997). From a linguistic point of view, this proves that the contacts of the predecessors of the Saami with the Uralic-speaking people south and east of their region were not cut off but instead active trade networks operated in the area. The numerous Karelian loanwords (likely more numerous than the Finnish borrowings) in the Saami languages point to networks dominated by Russian merchants with the Finnic-speaking Karelians functioning as middlemen.

The Nángunjárga region was most probably without permanent habitation but it must have been used for wild reindeer hunting since several toponyms pointing to such practices are to be attested in the region (Lavento & Saarikivi forthcoming). The toponymic evidence does not correlate with the hoard in any straightforward manner, although the fact that the region was visited occasionally but simultaneously relatively remote from dwelling sites makes it understandable that a valuable hoard was hidden here.

The spread of the Siuttavaara type of dwelling sites represents the northern Lapland manner of building dwellings ca. 1300–1600 AD. The distribution cannot be straightforwardly related with the languages or even any types of archaeological finds. Archaeologists, however, have regarded the Siuttavaara type of dwelling structures as a central entity characterizing a culture period. From a linguistic point of view, it is notable that the Siuttavaara type stone settings have been preserved in regions where the Saami languages have survived until the present day. Those Saami communities that existed in the Finnish inland and subsequently assimilated linguistically with the Finnic-speakers in the early historical periods (12th–15th centuries) did not leave behind such settings. This situation suggests a possible discontinuity in the material culture of the Saami groups that would also be helpful in explaining why the Saami assimilated with Finns in a particular area, whereas their culture and language prevailed in northernmost Fennoscandia.

The examples suggest that there are indeed various correlations between the archaeological and linguistic materials. The correlations scrutinized above point to local and network-based possibilities of interdisciplinary investigation, but do not permit a broad areal synthesis in which linguistically and archaeologically definable entities would neatly match each other and the groups that subsequently emerged in the investigated region.

Figure 2. Nángunjárga hoard. Photo: Marja Helander. Siida Saami museum.



Map 2. The East-European metal artefact finds during the early Medieval Period in Northern Fennoscandia. (N. A. Makarov 1992, p. 334.)

Expanding the Correlations

To illustrate different types of correlations between archaeological and linguistic material more fully, the following expansion of the correlation table presented above as Table 7 was prepared. Here, an effort was made to present different types of correlations between units that can be discerned at various levels of both linguistic and the archaeological investigation.

Needless to say, the table is only a first effort to create a system of correlations between the materials and results of the two disciplines and it does not strive to be complete. Most likely, it will be possible to present improvements to it on the course of forthcoming interdisciplinary investigations into prehistory of Northern Fennoscandia.

Discernible features	Discernible differences on a local level	Single item	Group of items	Group of people	Region	Macroarea	Cultural area	Time
?? phonetic feature in the speech of an individual	?? phonematic feature, sound change employed by a particular community	denomination of a cultural concept, for example an axe	layer of vocabulary related to a specific period; contact network	speech community (with inner variation)	a language form with several dialects or group of speech communities speaking different languages that engage in contact	group of related dialects or languages or languages that engage in contact	group of neighbour languages	period of reconstruction (for instance, a protolanguage, vocabulary layer)
vessel made by a particular potter	Subtype; local type	material object, for example an axe	several types, artefacts, etc.	site catchment area; band	group of bands with mutual contacts	culture / tribe	archaeological culture	calibrated period

Table 7. Examples of linguistic entities with their potential archaeological correlates.

The Table 7 represents an example as to how such correlates could, in principle, appear. One needs to bear in mind, however, that in many cases the investigator does not have enough reliable material to establish such connections between the archaeological and linguistic cultural heritage. In such cases some possible correlations are marked under question mark.

The Table 8 represents examples of the categories presented in the Table 7 above. As can be seen, they are, in fact, largely imaginary examples, because many of the presented correlations are not discernible in the material. The table is based on both archaeologically and as linguistically defined entities from the field of Northern Fennoscandian prehistory, for which possible correspondences have been sought in units investigated by the other discipline.

Beginning from the left, the smallest archaeologically discernible units can be found in the variables distinguished in finds. Some of them are of only

Attribute	Element	Implement	Subtype	Type	Type group	Site	Site group	Region	Area
a string impression	a row of string impressions	vessel	local ceramics	Kjelmøy ceramics	Säräisniemi 2 ceramics (including 4 ceramic groups)	Siuttavaara site with rectangular stone settings	sites with rectangular stone settings		distribution area of the Battle Axe culture
?? individual speaking habits	?? word referring to a particular type of ornamentation	word meaning 'vessel'	speech community	group of speech communities of the Early Metal Period	group of speech communities that were in contact; vocabulary spreading in such a network	Toponymy indicating no particular patterns of land use	Northern part of the subsequent speaking area of the Saami languages	Skolt Saami language	contact network that has distributed vocabulary

Table 8. Practical examples of linguistic entities with their potential archaeological correlates.

minor value while others can be essential because they shed light on significant evolution processes, for example, in technology. Ideally, an archaeologist can identify the remains produced by an individual, for instance, a potter who made several pots within a single site, by paying attention to features in the shape and ornamentation of several pots. From a linguistic point of view, it is clear that each and every individual has his own speaking habits, yet it is hardly possible to identify such features in any type of linguistic material related to prehistory. Therefore, there is nothing in historical linguistics that could correlate with the smallest discernible units in archaeology. However, the fact that individuals can be identified in the archaeological material reminds us that there has likely been significant linguistic variation within prehistoric communities investigated by archaeology.

At the next level, every material object belongs to a type that is a part of a type group. The archaeologist can classify items found at sites into subtypes or local types and this may raise the awareness of a linguist that there has been considerable variation in human populations and their networks in the past. It can be assumed that such variation may, in some cases, account to problems of linguistic reconstruction seeming to point to early linguistic variation that is discernible in the lexical material (that cannot be treated in a satisfactory manner with the normal comparative methodologies). However, even in such a case it is likely not possible to identify the particular correlating variables in the linguistic and archaeological material.

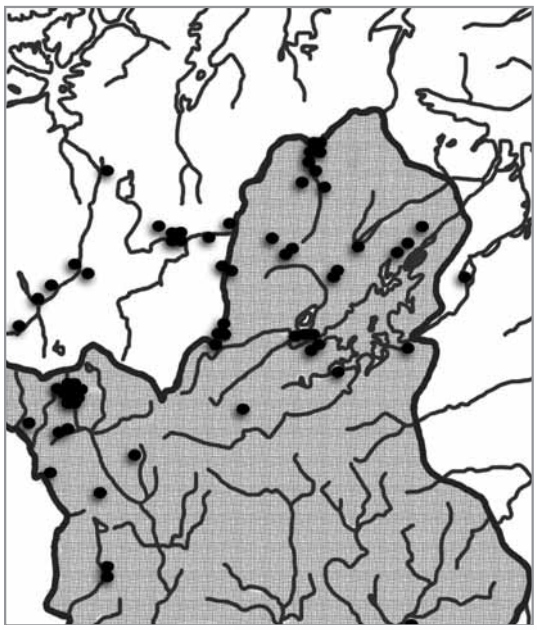
The same problem recurs at a lexical level. It is clear that all kinds of objects revealed by archaeology correlate with their names. Again, however, it is a problematic question as to how one can link a particular denomination of a material such as a metal, a denomination of an artefact such as a pot or a sword or

denomination of a particular technology with types that have been reconstructed on the basis of the archaeological material. This is especially problematic in that the reconstructive evidence in linguistics is often of fairly general character. This means that it may be possible to reconstruct, for instance, a word for 'sword' on a particular layer of vocabulary, but it is often not possible to know what type of a sword it has denoted. This is especially problematic if there are several words for sword in the language, and several types of swords in the archaeological material from different periods. An even further problem is caused by the difficulties related to the identification of the past language areas in the archaeological material that is addressed above in this article.

Notwithstanding all difficulties, on a lexical level it is sometimes possible to establish fairly reliable correspondences between archaeology and linguistics. As already noted, a fairly sound locating and dating of Indo-European protolanguage to the Southern Ukrainian steppe around 3500 cal. BC has been made on the match between the words denoting to 'cart', 'wheel' and 'axle' which can be reconstructed in Proto-Indo-European, and corresponding archaeological material (from the so-called Srednyj Stog culture, cf. Mallory 1989; Anthony 2007). This location is also well in accordance with the geographical spread of the Indo-European languages and linguistic features within those languages. In a similar manner, the spread of the Austronesian languages has been associated in research history with the spread of canoes equipped with the pontoons from Taiwan to the islands of the Pacific and the Indian Ocean. The words for such features can be reconstructed in Proto-Austronesian.

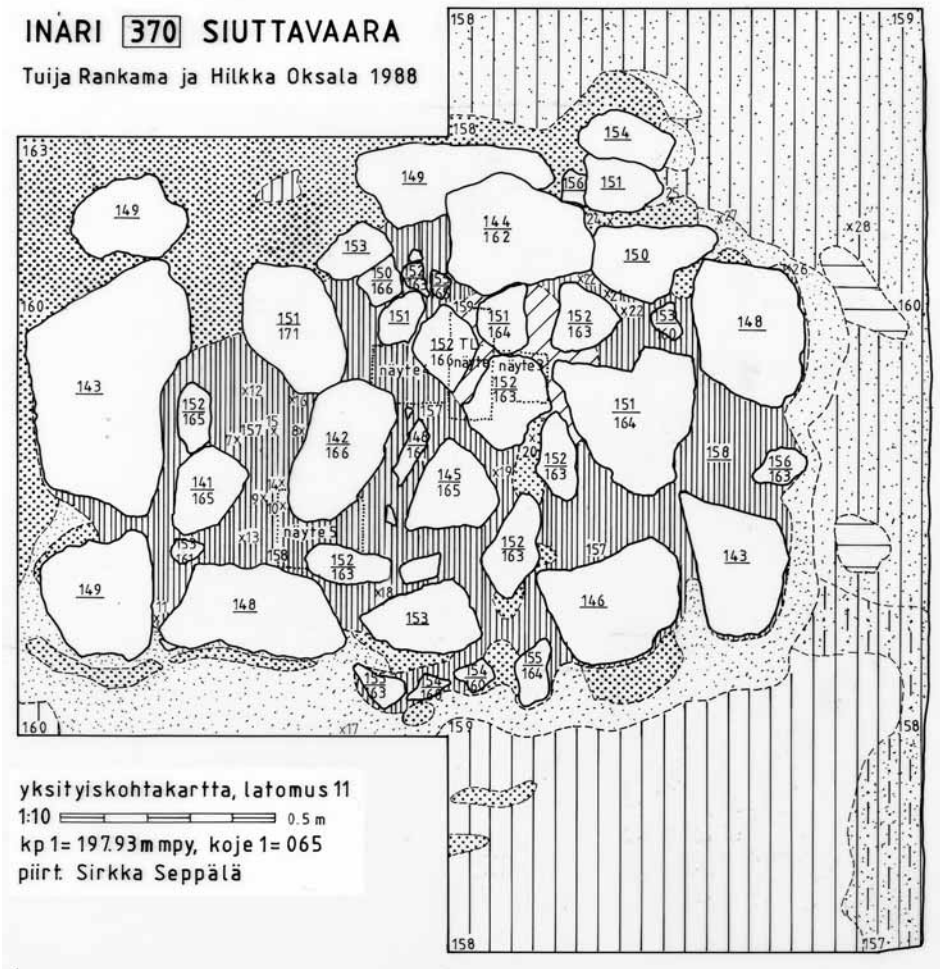
As for local archaeologically discernible phenomena, it is clear that their linguistic counterpart is, first and foremost, their toponymic environment. This may be multilayered both in terms of languages, as well as in terms of cultures. An archaeologist can read toponyms as a tool for understanding the meaning of places. The basic questions are: what was the meaning of the place to those people who created the names around it and how ought the site to be understood in relation to its linguistic environment. In many cases, the toponymic environment of an important site would not appear to be remarkable as such, but if interpreted carefully with the help of both archaeological material and ethnographic material from later periods, it may contribute to a better understanding of the function of the place. This is the case with many dwellings, sacred sites and borders. However, the different phenomena in the long chronological chain of the archaeological material do not always find counterparts in the present-day toponymic material. Many toponyms have disappeared, and complex toponymic systems may have broken down so that only single, hardly interpretable toponyms remain.

In an ideal case, it may be possible for archaeology to identify a cluster of sites that has formed a local community that can, with necessary caution, to be interpreted as a speech community. This is the case of the rectangular stone settings of the Siuttavaara type in Siuttavaara (Figure 3). The interpretation of a cluster of finds as a speech community may happen on the basis of ethnographic



Map 3. Distribution of rectangular stone settings of the Siuttavaara type (Carpelan 2003: 69).

Figure 3. An excavated rectangular stone setting from Siuttavaara. Sirkka Seppälä, 1988. National Board of Antiquities, Finland.



information, but it may also be based on ecological zones and the location of other clusters of sites. With remote historical periods, however, it may be impossible to know which language(s) was/were in use in this community and how its language differed from those of other nearby communities. In societies of hunter-gatherer type, these populations are often small. The larger the number of individuals, the more complex the structure of the population, which was most likely also reflected in linguistic identities. But even a small population may have been ethnically complex.

Ceramics is usually seen as an important denominator of an archaeological culture. For instance, both Lovozero ceramics and Corded Ware represent a relatively large distribution of ceramic types. The problem of interpreting such ceramic groups is still complex, however, because of their highly different characteristics. For instance, Lovozero ceramics defines a group of people that can be defined only on the basis of ceramics in archaeology. It has been employed in a few communities in a geographically fairly restricted area and it is, in principle, highly possible that these communities were linguistically close, although this might be impossible to prove (cf. Lavento & Saarikivi forthcoming).

The opposite kind of example of defining an archaeological culture is show by Corded Ware. It represents an extremely large entity including many subtypes of ceramics, grave types, several types of dwelling sites etc. This kind of large cultural group that covers an area of millions of square kilometres over a period of more than 600 years must necessarily have been employed by people representing highly diverse language groups. Corded Ware thus represents a cultural area comprising many linguistic groups that have employed similar cultural innovations and been involved in the same far-reaching cultural networks.

The borders can be drawn between the groups on the basis of material objects. Still some objects – battle axes, for instance – spread outside these borders. To assume that all the places where battle axes have been found denote the areas of a single population, however understood (an ethnic or a linguistic group), would be a most vague hypothesis.

One basic problem for scholars who try to correlate the archaeological and linguistic data is the discrepancy related to their meanings and distribution. Similar archaeologically identifiable objects can be found in different places but their meaning in those contexts can vary greatly. The meanings related to battle axes in different places where they have been found have certainly been very different for the different groups and individuals of the past. It would seem more likely that the battle axes show the relations between groups in the some kind of network system. From a linguistic point of view, such a far-reaching network that transmitted fashions and ideas of an artefact type most likely also transmitted some vocabulary. It is indeed possible that many languages shared the same word for ‘battle axe’, for instance, that spread from a language to another, although in some language it may also have been denoted by an autochthonous expression. Typically, the communities everywhere have participated in several such network systems which have connected them with different regions. Each artefact type reflects the history of the networking in its own manner.

Discussion

Combining the results of archaeology and linguistics ultimately means to combine different reconstructions of mental, societal, economic and religious culture. Although archaeology investigates sites and types and linguistics investigates phonemes and semantic shifts, the only way to correlate the two disciplines is to make assumptions of the cultural concepts employed in past societies.

Critiques of many traditional ways of combining archaeological and linguistic materials presented in this article are based on the several weaknesses of such approaches. Firstly, many of them operate through the concept of ethnicity, although the correlations between language, material culture and ethnicity are very complex, and there is often no straightforward correlation between linguistic and ethnic identities. For the second, they often proceed from the assumption that linguistic areas would have been fairly homogenous in the past, although in order to make such an assumption one should offer a historical sociolinguistic analysis of the past societal circumstances in which the languages were spoken. Moreover, the ethnographic analogies available suggest that the linguistic diversity in the past has been more significant than at present. Although some types in material culture have been used in archaeology for distinguishing entities such as cultures, one should be careful in interpreting them as parallel to language areas. In fact, the communities identified by archaeological investigation may often have been bi- or multilingual, or the languages spoken in them may have changed over time as a result of processes which have not left observable archaeological traces. The authors of this article suggest that the most typical linguistic correlate of an archaeological culture (where such can be postulated in the first place) would be a *Sprachbund*, not a language area. Last but not least, many attempts to combine linguistic and archaeology assume that the spread of languages is related to the spread of people, although there are various ways for languages to spread, both by migration as well as by language shift.

It was argued that in order to create more fruitful correlations between these two disciplines, one should reach behind the archaeologically and linguistically definable areas, and tackle the past forces that shaped these areas. For such a goal, one should have a theory of historical sociolinguistic situations in the investigated context, and a theory regarding the forces that spread language(s) in it. Furthermore, we should try to distinguish the types of archaeological heritage that, in a given context, can be associated with speech communities from those that point to cultural areas or cultural networks. Thus, one needs to focus on the cultural reconstruction of the particular aspects of the past societal reality and the forces that shaped it rather than on finding matching areas of linguistic and archaeological phenomena.

On the positive side, it has been demonstrated that there are indeed various types of correlations between linguistic and archaeological material and that an interdisciplinary investigation of prehistory with the help of the two disciplines can really be a fruitful endeavour. However, many of the correlations that can be established between the results of the two disciplines are not of areal character.

It seems that, from the various possible correlation types that have briefly been treated in the previous sections those that operate at the local level seem to come closest to real interdisciplinary correlation. Different connections between ecologically definable natural regions, the toponymic environment and the archaeological record can be complementary in a way that enables the reconstruction of different aspects of the life of the past communities of the relatively recent prehistoric periods, including community borders, sacred sites, forms of livelihood, etc.

In addition to local correlations between archaeological sites and toponymic material, it is possible to establish correspondences between networks that spread artefacts, materials and technologies and vocabulary that spreads within such networks. Such long-distance contacts are, in most cases, reflected in the layers of vocabulary shared by several languages, not in the past language areas. However, in material related to particular periods they are archaeologically more visible than the past language areas and often constitute regions that have been labelled as archaeological cultures, especially if common ceramic types were employed in them.

From a linguistic point of view, the problem with many accounts of prehistory is that they are not sensitive in respect of the role of language in the past communities. Although we do not have much knowledge regarding the linguistic identities of the past it would seem to be the case that in the Eurasian context ethnicity and language were not necessarily very intimately connected. Such a state of affairs is reflected in many early sources regarding Eurasian state formations. This suggests that many of the communities that archaeology can reveal were, in fact, multilingual and that, in many contexts, the linguistic boundaries, where they existed, were of pervious character.

Another much neglected aspect of the linguistic prehistory of Northern Europe is the tendency of linguistic diversity to diminish in the course of history. In light of ethnographic analogies from Siberia and the Americas there has likely been a remarkable linguistic diversity even in the prehistoric Northern Europe. The speech communities of the early hunter-gatherers have, with all likelihood, been small and consisted of several hundred or (maximally) a couple of thousand speakers. Language families may have comprised of few closely related languages but, quite probably, no large phyla emerged. In the light of the analogies, widespread multilingualism has likely prevailed in such communities. Because of the small size of the linguistic communities, even rapid changes may have taken place in the linguistic environment. Only remains of this linguistic diversity survive as a Palaeo-European linguistic substrate in Saami, Germanic, Finnic and probably also other language groups. In the Saami languages, the substrate vocabulary that, with all likelihood, derives from extinct languages can be found especially in the words denoting concepts of northern flora, fauna and geographical features, as well as in toponyms.

This kind of dynamic view of the past linguistic communities of Northern Europe during the Stone Age and the Early Metal Period is very different of the multiple approaches that deal exclusively with the Finno-Ugrian and Indo-Euro-

pean languages and their contacts. In the threshold of the historical period, the record reveals a chain of dynamic Saami communities involved in long-distance contacts with tax collectors, traders and missionaries and represent a complex mutual relationship involving an intensive movement of the people from one community to another. These groups spoke Finno-Ugrian languages that spread to this territory probably somewhere in the early Iron Age (probably mainly by language shift of the earlier populations) and they continued the cultural traditions of the earlier Arctic groups.

The active and culturally dynamic characteristics of the Saami groups at the beginning of the historical era hints to the fact that the Arctic communities were less stable in the prehistoric periods than would appear probable on the basis of the archaeological record only. It would seem possible that very substantial changes between and inside the Saami communities have taken place even before the historical period and that the economic basis of the communities may also have transformed fairly quickly from time to time. Such a state of affairs would call into question the view still prevailing in many accounts of Saami prehistory that the northern communities were stable over a long period of time.

Literature

Adams, W. Y. & Adams, E. W. 1991: *Archaeological typology and practical reality. A dialectical approach to artifact classification and sorting.* Cambridge University Press.

Aikio 2006: 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. 5–34.

Aikio 2007: The study of Saami substrate toponyms in Finland. – Ritva Liisa Pitkänen & Janne Saarikivi (eds.): *The borrowing of place-names in the Uralic languages.* Onomastica Uralica 4. Debrecen – Helsinki. 159–197.

Ainiala, T. 1997: *Muuttuva paikannimistö.* Suomalaisen kirjallisuuden seuran toimituksia 667. Helsinki: SKS.

Allen, W.L. & Richardson, J.B. 1971: The Reconstruction of Kinship from Archaeological Data: the Concepts, the Methods and the Feasibility. *American Anthropology* 37:1. 41–53.

Anthony, David W. 2007: *The horse, the wheel and language. How bronze-age riders from the Eurasian steppes shaped the modern world.* Princeton – Oxford: Princeton University Press.

Arnold, D. E. 1993: *Ceramic theory and cultural process.* New Studies in Archaeology. Reprinted paperback edition. Cambridge.

Barth, F. 1969: Ethnic Groups and Boundaries. – F. Barth (ed.): *Ethnic Groups and Boundaries. The Social Organization of Culture Differences.* Scandinavian University Books. Bergen, Oslo, London. 9–38.

Campbell, Lyle 2004: *Historical linguistics. An introduction.* Edinburgh: Edinburgh University Press.

Carpelan, C. 1999: Käännekohtia Suomen esihistoriassa aikavälillä 5100–100 eKr. – Fogelberg, Paul (ed.): *Pohjan poluilla. Suomalaisten juuret nykytutkimuksen mukaan.* Bidrag till kännedom av Finlands natur och folk 153. 249–280.

Carpelan, C. 2003: Inarilaisten arkeologiset vaiheet. – V.-P. Lehtola (ed.): *Inari – Aanaar. Inarin historia kivikaudesta nykypäivään.* Inarin kunta. Oulu: Painotalo Suomenmaa.

Clarke, D. L. 1968: *Analytical Archaeology.* London: Methuen.

Fox, Anthony 1995: *Linguistic reconstruction. An introduction to theory and method.* Oxford: Oxford University Press.

Gosselain, Oliver 2009: Exploring the dynamics of African pottery cultures. – R. Barndon, I. Øve & A. Endevik (eds.): *Technology and Regions in a long term perspective.* Edwin Mellen Press.

Gosselain, Oliver P, Smith, Alexandre Livingstone, Wallaert, Hélène, Ewe, Guy Williams & Linden, Marc Vander 1996: Preliminary results of the fieldwork done by the "Ceramic and Society Project" in Cameroon, December 1995 – March 1996. *Nyame Akuma* 46. December 1996.

Halinen, P. 2004: Prehistoric Hunters of Northernmost Lapland. Settlement Patterns and Subsistence Strategies. *Iskos* 14.

Hansen, L.I. & Olsen, B. 2007: *Samenes historie fram til 1750. 3. opplag.* Oslo: Cappelen akademisk förlag.

Heggerty, P. 2007: Linguistics for archaeologists. Principles, methods and the case of Incas. – *Cambridge Archaelogical Journal* 17 (03). Cambridge: Cambridge University Press. 311–340.

Heggerty, P. 2008: Linguistics and archaeology. A case-study in the Andes. *Cambridge Archaelogical Journal* 18 (01). Cambridge: Cambridge University Press. 35–56.

Hodder, I. 1982: *Symbols in action. Ethnoarchaeological studies of material culture.* Cambridge University Press.

Hodder, I. 1986: *Reading the past. Current approaches to interpretation in archaeology.* Cambridge: Cambridge U.P.

Janhunen, J. 1998: Ethnicity and language in prehistoric northeast Asia. – Blench, Roger & Spriggs, Matthew (eds.): *Language and archaeology II. One World Archaeology* 29. London – New York: Routledge.

Janhunen, Juha 2009: Proto-Uralic – what, where and when? – Jussi Ylikoski (ed.): *The Quasquicentennial of the Finno-Ugrian Society.* Mémoires de la Société Finno-Ougrienne. 57–78.

Jones, S. 1997: *The Archaeology of Ethnicity: Constructing Identities in the Past and Present.* London: Routledge.

Kiviniemi, Eero 1975: *Paikannimien rakennetyypeistä.* Suomi 118: 2. Helsinki: Suomalaisen Kirjallisuuden Seura.

Kiviniemi, E. 1977: Väärät vedet. Tutkimus mallien osuudesta nimenmuodostuksessa. *Suomalaisen Kirjallisuuden Seuran toimituksia* 337. Helsinki: SKS.

Kiviniemi, Eero 1990: *Perustietoa paikannimistä*. Suomi 148. Helsinki: Suomalaisen kirjallisuuden Seura.

Korpela, Jukka 2009: *The world of Ladoga. Society, trade, transformation and state building in the Eastern Fennoscandian boreal forest zone c. 1000–1555.* Nordische Geschichte Bd. 7. Münster: LIT Verlag.

Korpijaakko-Labba, K. 2000: *Saamelaisten oikeusasemasta Suomessa. Kehityksen pääpiirteet Ruotsin vallan lopulta itsenäisyyden ajan alkuun*. Guovdageaidnu: Sámi instituhtta.

Labov, William 1978: *Sociolinguistic patterns.* Oxford: Basil Blackwell.

Lamberg-Karlovsky 2002: Archaeology and language. Indo-Iranians. – *Current Anthropology* 43. The University of Chicago Press. 63–88.

Lavento, Mika & Saarikivi, Janne (forthcoming): Emergence of communities in and around Inari. Examining the limits of linguistic and archaeological knowledge. In Peter Jordan & Charlotte Damm (forthcoming).

Lind, John 2007: Problems of ethnicity and the interpretation of written sources on Early Rus'. – Juhani Nuorluoto (ed.): *Slavicization of the Russian North. Mechanisms and chronology.* Slavica Helsingiensia 27.

Makarov, N. A. 1992: Trade Relations between Russia and Northern Fennoscandia in the Early Medieval Times. – Julku, Kyösti (ed.): *Suomen varhaishistoria*. (Tornion kongressi 14.–16.6.1991.) Studia Historica Septentrionalia 21. Rovaniemi: Pohjois-Suomen historiallinen yhdistys – Societas Historica Finlandiae Septentrionalis. 333–342.

Makarov 1997 = Макаров Н. А.: *Колонизация северных окраин древней Руси в XI–XIII вв. По материалам археологических памятников на волоках Белозерья и Поонежья*. Москва: Скрипторий.

Mallory, J. P. 1989: *In search of the Indo-Europeans. Language, archaeology and myth.* London: Thames & Hudson.

Matveev 1986 = Матвеев, А. К.: *Методы топонимических исследовании. Учебное пособие.* Свердловск: УрГУ.

Milroy, James 1992: *Linguistic variation and change. On the historical sociolinguistics of English.* Language in Society 19. Oxford: Blackwell.

Renfrew, Colin 1987: *Archaeology and language. The puzzle of Indo-European origins.* London: Jonathan Cape.

Renfrew, Colin 2008: *Prehistory. The making of human mind.* Random House Publishing.

Romaine, Suzanne 2000: *Language in Society. Introduction to sociolinguistics.* Oxford: Oxford University Press.

Ross, M. 1997: Social networks and kind of speech-community event. – Blench, Roger & Spriggs, Mathew: *Language and archaeology.* One world archaeology 34. London – New York: Routledge.

Nichols, Johanna 1998: The Eurasian spread zone and the Indo-European dispersal. – Blench, Roger & Spriggs, Matthew (eds.): *Language and archaeology I*. One World Archaeology 34. London – New York: Routledge.

Saarikivi, Janne 2000: Kontaktilähtöinen kielenmuutos, substraatti ja substraattinimistö. *Virittäjä* 3/2000. 393–415.

Saarikivi, Janne 2007: General characteristics of Finno-Ugrian substratum toponymy of the Russian European North. – Janne Saarikivi & Ritva Liisa Pitkänen (eds.): *Onomastica Uralica* 4. *Borrowing of toponyms in the Uralian languages*. Debrecen – Helsinki. 2008. 87–150.

Saarikivi, Janne 2007b: Finnic personal names in Novgorod birch bark documents. – Juhani Nuorluoto (ed.): *Topics on ethnic, linguistic and cultural making of Russian North*. Slavica Helsingiensia 32. 196–246.

Saarikivi, Janne 2011: Saamelaiskielet: historiaa ja nykypäivää. – Irja Seurujärvi-Kari & Petri Halinen & Risto Pulkkinen. SKS: Tietolipas 234. Helsinki: Suomalaisen kirjallisuuden seura.

Sammallahti, Pekka 1995: Language and roots. *Congressus octavus internationalis Fenno-Ugristarum*. Jyväskylä. 143–153.

Sinor, Denis 1999: Some thoughts of nostratic theory and its historical implications. – Colin Renfrew & Daniel Nettle: *Nostratic. Investigating a Linguistic Macrofamily*. Cambridge: McDonald Institute.

Tallgren, A.M. 1937: The Method of Prehistoric Archaeology. *Antiquity* 1937. 152–161.

Terrell, John Edward 2001: Ethnolinguistic groups, language boundaries and culture history. A sociolinguistic model. – Terrell, John Edward (ed.): *Archaeology, language and history. Essays on culture and ethnicity*. Westport, Connecticut – London: Bergin & Garvey.

Thosmason, Sarah 2001: *Language contact. An introduction*.Edinburgh: Edinburgh University Press.

Trigger 1989: *A History of Archaeological Thought*. Cambridge University Press. Cambridge.

Wiik, Kalevi 2002: *Eurooppalaisten juuret*. Atena. Jyväskylä.

Viinanen, V. 2002: *Inarin rajahistoria* I. *Pohjoiset valtarajat Inarin-Jäämeren alueella 1500-luvulta 1800-luvulle*. Studia Historica Septentrionalia 40. Societas Historica Finlandiae Septentrionalis. Rovaniemi.