Contents

LIST OF ABBREVIATIONS

The following is a list of abbreviations that are used in examples. Other abbreviations are explained as they are presented.

ABE	abessive case		MASC	masculine
ABL	ablative case		NEUT	neuter
ACC	accusative case		NOM	nominative
ADE	adessive case		NONFIN	nonfinite
A/G	accusative/genitive case		NUM	number
CAUS	causative		OBL	oblique
CLASS	classifier		PART	partitive case
COM	comitative case		PASS	passive
DAT	dative case		PAST	past tense
DEF	definite		PCP	participle
DIM	diminutive		PER	person
DP	determiner phrase		PL	plural
DU	dual		POT	potential mood
ELA	elative case		PP	prepositional phrase
ESS	essive case		PRET	preterite
FREQ	frequentative		PRF	perfective aspect
GEN	genitive case		PRS	present tense
ILL	illative case		PROL	prolative case
IMP	imperative		PRON	pronoun
IMPRF	imperfective aspect		PRS	present tense
IND	indicative		QU	question particle
INE	inessive case		SG	singular
INF	infinitive		TNS	tense
INTR	intransitive		TRANS	transitive
LOC	locative case			

ETYMOLOGICAL NATIVIZATION OF LOANWORDS

A CASE STUDY OF SAAMI AND FINNISH

ANTE AIKIO
University of Oulu

Speakers bilingual in two genetically related languages may become aware of regular sound correspondences between the languages, and this gives an impetus to mimic the observed patterns by adapting loanwords to these correspondences. Due to this process of etymological nativization, even young loanwords can display correspondences that are not phonetically transparent. The study presented in this paper shows that loanwords between Saami and Finnish, two not very closely related branches of the Uralic family, show vowel substitution rules such as i > a and a > i, which lack a phonetic motivation but conform to correspondences in inherited vocabulary. Such phenomena require a revision of the criteria commonly applied in the dating and stratification of loanwords: in a case of intensive borrowing between two related languages, sound correspondences do not always allow one to consistently distinguish between older and younger loanwords or even between loanwords and cognate items.

1.   *Introduction*

It is well known that speakers acquainted with two dialects of their native language can acquire an intuitive understanding of the phonological correspondences between the varieties, with the result that they are able to regularly transform forms of one dialect into the other. In fact, some dialect jokes are based on this phenomenon. It has also been at least implicitly recognized in foreign language pedagogy that this phenomenon works not only between dialects but also between closely related languages. Estonian textbooks for native speakers of Finnish explicitly instruct the student to form Estonian words on the basis of their Finnish cognates by applying processes such as apocopation, syncopation, shortening of unstressed long vowels, and abolition of vowel harmony, which directly correspond to sound changes that have taken place during the history of Estonian.

For instance, Kasik's Estonian textbook (1991) begins with a description of eight consonant and nine vowel rules by which Finnish word-forms can be regularly transformed into their Estonian cognates. After this there is an exercise where the student must convert entire Finnish sentences into Estonian by applying these rules, as follows:

(1)   *Minä olen uusi eestin kielen opettaja.* (Finnish)
            Mina olen uus eesti   keele   õpetaja. (Estonian)
            "I am the new Estonian teacher"

The rules applied in the example include abolition of vowel harmony (*minä > mina*), apocope after a long initial syllable (*uusi > uus*), deletion of the GenSg ending *-n* (*eestin kielen > eesti keele*), monophthongization of falling diphthongs (*kielen > keele*), the vowel shift *o > õ*, and the shortening of geminates in suffixal syllables (*opettaja > õpetaja*).

What is less well known is that similar recognition of regular sound correspondences is occasionally witnessed also among speakers bilingual in languages that are only remotely related, and that this tends to have an effect on how loanwords transferred between the two languages are phonologically nativized: borrowed items can be adopted in a form which partially or entirely conforms to the sound correspondences that occur in shared vocabulary. This phenomenon has been discussed in a couple of textbooks and case studies under terms such as 'etymological nativization' and 'correspondence mimicry', but the information is scattered and there exists no detailed account on the subject.

This paper presents a case study on a historical language contact situation which reflects widespread recognition of etymological correspondences—the contact between Saami and Finnic, two rather remotely affiliated branches of the Uralic (Finno-Ugric) language family. The next section provides a summary of references about this phenomenon. Section 3 provides an analysis of the substitution patterns of vowels in loanwords between Saami and Finnish. The concluding section examines what implications the results of the present study have for the methodology of comparative linguistics.

2.   *A summary of the literature*

The existence of etymological nativization has been noted in a couple of handbooks. The definition provided by Larry Trask in his *Dictionary of Historical and Comparative Linguistics* can be taken as a starting point:

> When there is widespread bilingualism between speakers of two closely related languages, speakers will often be keenly aware of the phonological and morphological correspondences holding between the two languages. In such circumstances, a loan word may be nativized replacing each of its segments with the

regularly corresponding segment in the borrowing language... As a result, the borrowed items may be indistinguishable from native formations... (Trask 2000a s.v. loan nativization)

According to Trask, the names 'loan nativization', 'loan adaptation' and 'correspondence mimicry' have been applied to the phenomenon; the first two of these terms are ambiguous and therefore do not seem to be suitable. The same phenomenon has also been briefly discussed by H. H. Hock (1986:392-393), who calls it 'etymological nativization'; the term coined by Hock seems particularly apt. Hock provides a couple of examples from Slavic and Celtic, including the substitution of Pre-Irish *q- for Pre-Welsh *p- in borrowed vocabulary, such as the personal name *Qatrikias < Pre-Welsh *Patrikios (< Latin Patricius). The model is provided by the correspondence $q \sim p$ in cognate items such as Pre-Irish *qē 'who' $\sim$ Pre-Welsh *pē id.

Primary studies that treat etymological nativization appear to be scarce. Nash (1997) discusses lexical relations between various Australian aboriginal languages in the Northern Territory, providing also examples of etymological nativization—or 'correspondence mimicry' in Nash's terminology. Loanwords between languages in the Pama-Nyungan family have become adjusted to consonant correspondences resulting from the so-called 'initial dropping' that has taken place in certain languages. The initial-dropping languages have lost all instances of original word-initial consonants. Speakers that are bilingual in an initial-dropping and a neighboring non-initial-dropping language tend to recognize the regular correspondence, and mimic it in loanwords so that word-initial consonants become dropped when borrowed into an initial-dropping language from a non-initial-dropping one. This example of etymological nativization in Australian languages is also mentioned by Koch (1997:35) in the same volume. A brief discussion on the phenomenon in certain Australian languages is also provided by Alpher & Nash (1999:14-15).

Leer (1990:86-88) discusses the relation of Tlingit to its remote relatives, the Athabaskan languages and Eyak, and points out that certain words borrowed from Athabaskan to Pre-Tlingit show puzzling consonant substitutions which have no phonetic or structural motivation. Referring to an unpublished paper by Michael Krauss, Leer suggests that etymological nativization (which he calls 'loan adaptation') may be responsible for the phenomenon. However, because Leer's explanation involves the positing of unattested prehistoric Tlingit dialects, etymological nativization in Tlingit is presumably best regarded as a hypothesis rather than a solidly documented case.

Grace (1996) provides an interesting description of how the application of the comparative method to certain apparently closely related Austronesian languages

of New Caledonia has 'failed'; the lexical material shared by these languages contains so many recurring sound correspondences that it is not possible to set up sound laws and reconstruct the proto-language. Grace considers this state of affairs the result of a *Sprachbund* with widespread bi- and multilingualism, where boundaries of linguistic communities have not coincided with language boundaries, and suggests that also etymological nativization (even though he does not use this term) has taken place during the course of extensive borrowing and interference:

> What I want to propose is that to the extent that there is diffusion of signantia from any particular phonological dialect to any other, there will be regular sound correspondences which provide the basis of conversion of such signantia from one to the other. And this will be true either if the two phonological dialects are virtually indistinguishable ones spoken, say, by next-door neighbors or if they are fundamentally different ones—for example, belonging to mutually unintelligible languages. (Grace 1996:175)

Interestingly, there is also evidence suggesting that etymological nativization can occur between unrelated languages. Comrie (1993) briefly mentions what he calls 'traditions of sound correspondence' in loanwords adopted to Persian from Arabic. As the languages in question are not genetically related, the patterns of etymological nativization can only be modeled after words reflecting an earlier period of borrowing succeeded by further sound changes in the source and target languages. Mistakenly, though, Comrie considers these kinds of patterns to be influenced by literary language; but the existence of similar processes in Australian and other languages demonstrates that etymological nativization is a result of phonological processing and not attributable to the influence of archaic spelling. Regrettably, Comrie provides no concrete examples or further references.

Another case of etymological nativization between unrelated languages is reported by Trask (2000b:53-54). He analyses the Basque word *zeru* 'sky' as a borrowing from an Early Romance development of Latin *caelum* id.; the borrowing is clearly post-Latin, as it shows a reflex of the spirantization of Latin /k/ before a front vowel. However, Latin *u* was lowered into *o* in Romance before the spirantization took place, and hence the final *-u* in *zeru* is unexpected, especially as there are loanwords older than *zeru* that display Basque *-o* in the place of Latin *u* (for example, Basque *bago* ∼ *pago* 'beech', cf. Spanish *haya* < Latin *fagus*). The substitution of Basque *u* for Romance *o* in *zeru* has no phonetic or structural explanation, as final *-o* is quite normal in Basque. Trask proposes that the substitution was modeled after the correspondences in the oldest layer of loanwords which were adopted before the shift *u > o* in Romance (for example, Basque *liburu* 'book', cf. Spanish *libro*).

A further example provided by Trask is the substitution of Basque final *-oi* for Spanish *-ón* in recent loanwords such as Basque *abioi* 'airplane' < Spanish *avión*, Basque *kamioi* 'lorry, truck' < Spanish *camión*. This substitution is not phonetically or structurally motivated, as word-final *-on* is fully permitted in Basque. Instead, this pattern has also arisen due to the analogical influence of earlier borrowings. Spanish *-ón* reflects Early Romance *-*one* (< Latin *-onem*), which was borrowed into Pre-Basque as *-*one* and then underwent regular loss of intervocalic *n: Pre-Basque *-*one* > *-*oe* > Modern Basque *-oi*. The development is attested in such Romance loanwords as Basque *arratoi* 'rat' < *arratone < Romance *ratone (> Spanish *ratón*), Basque *arrazoi* 'reason' < *arrazone < Romance *ratsone (> Spanish *razón*).

Finally, we can turn to the case of Saami. Erkki Itkonen provides a vivid description of how the regular correspondences between Finnish and Saami are recognized by bilingual persons:

> The relationship between Finnic and Lapp is special in that without particular practice the representatives of these language groups cannot understand each others' speech at all, but the identity of hundreds of common Finnic-Lapp words and tens of common inflectional forms can immediately be recognized by one acquainted with the sound correspondences between the languages, as if deciphering some code sound by sound into another cipher system. To one's astonishment, among Lapps one occasionally gets to notice how intelligent bilingual individuals intuitively master this system since childhood. In the year 1931 in Lemmenjoki, Inari, a 12-year-old boy remarked that Lapp *gâpper* [= *gahpir*] 'cap, hat' is the same word as Finnish *kypärä* ['helmet']. (Itkonen 1961:53; translated from Finnish)

Itkonen does not explicitly discuss how this intuitive understanding of the relationship between Finnish and Saami affects the phonological nativization of loanwords. But as might be expected, the sound substitutions in Finnish loanwords in Saami are significantly influenced by the perceived correspondences in cognate vocabulary, as the data presented in Section 3 will reveal. Even though this phenomenon has hardly ever been explicitly discussed in the literature, it is clear that specialists in Saami linguistics have implicitly recognized it. For example, Korhonen (1981:105) notes that certain Finnish second-syllable vowels have regularly undergone etymological nativization in borrowings into Saami (see 3.6 for examples and discussion), and calls it "predictable" that the substitutions have been modeled after the correspondences in cognate vocabulary.

To sum up, there is evidence of etymological nativization in a number of languages around the world—at least Saami, Slavic, Celtic, Pama-Nyungan, Basque and Persian, possibly also Austronesian and Tlingit. The fact that there is scattered information from diverse languages in many parts of the world suggests

that the phenomenon may in fact be relatively common, even though its existence has not been widely recognized.

On the basis of the examples discussed, one adjustment can be made to Trask's definition of etymological nativization quoted above. It is not necessary for the contacting languages to be closely related—for example, Saami and Finnish cannot be considered closely related—or even genetically related at all, as demonstrated by the treatment of Spanish loanwords in Basque. All that is needed is a sufficient number of shared vocabulary displaying a given sound correspondence that provides a model for sound substitution. Whether this vocabulary reflects genetic relationship or merely an earlier period of borrowing is of no significance.

It must be noted that while 'etymological nativization' as defined here is a phonological phenomenon, the other terms applied in research have not been used in exactly the same sense. Leer defines 'loan adaptation' so that it comprises also morpheme-to-morpheme substitutions and calques. Also 'correspondence mimicry' has been applied to morphological processes: Evans (1998) discusses the origin of initial consonant mutation in the Australian language Iwaidja, and proposes a development which involves an "extreme case of... correspondence mimicry" (p. 143). However, what he refers to is apparently an instance of cross-language morphosyntactic analogy: Evans concludes that the distribution of the so-called 'miscellaneous prefix' in Iwaidja has been remodeled according to the corresponding possessor-gender forms in the neighboring languages Ilgar and Maung.

It is necessary, though, to make a distinction between two types of substitutions: those that mimic etymological correspondences between the contacting languages on the one hand, and those based on the semantic-functional correspondences of morphemes on the other. 'Etymological nativization' must be defined as the first type of case, and from this it follows that etymological nativization can only occur in the realm of phonology. Between morphemes there are always also semantic-functional correspondences due to which it is often impossible to decide whether a given morpheme substitution results from etymological or semantic-functional factors. A single example will illustrate this. Finnish *kelvoton* 'worthless, useless' (consisting of *kelpo* 'good, fine, decent' + the caritive suffix *-ton*) has been borrowed into North Saami as *gealbboheapme*, the Saami caritive suffix *-heapme* replacing the corresponding Finnish suffix *-ton*. Despite the phonological dissimilarity the suffixes are indeed cognate: both reflect the Proto-Uralic caritive ending *-ptama*. Nevertheless, this is not an instance of etymological nativization because there is also a full semantic-functional correspondence between the two suffixes. Hence, it is impossible to know whether their cognation has played any role in the adoption of this word.

Spanish:	*ratón*	*razón*	*avión*
Basque:	*arratoi*	*arrazoi*	x (= *abioi*)

Table 1: *Spanish -ón > Basque -oi*

Now that etymological nativization has been defined, it can be placed in a general linguistic framework. The phenomenon can be described as a quite normal instance of analogy, as the Basque example discussed above reveals (Table 1).

The concept of analogy is implicitly present in Hock's (1986) treatment of etymological nativization. The only notable difference from typical examples of analogy is that etymological nativization involves forms belonging to two distinct languages instead of one language.

3. *The nativization of vowels in the Finnic loanwords in Saami*

3.1 *The contact setting*

This section presents a study of the substitution patterns of vowels in Finnic / Finnish loanwords in Saami. First, it is useful to briefly summarize the main outline of the duration and extent of the language contact between Finnic and Saami.

Finnic is a group of closely related languages spoken around the Gulf of Finland. The total number of Finnic languages is between six and eight, depending on where one is inclined to draw the line between a dialect and a distinct language. For the purposes of this presentation it is sufficient to reckon with the phonologically most conservative Finnic language; that is, Finnish, and its immediate reconstructed predecessor, Proto-Finnic.

Saami, likewise, is a group of languages that are approximately as closely related as the Finnic languages. It is customary to distinguish between ten Saami languages, which are spoken in a chain-like continuum along an area stretching from central Scandinavia in the southwest to the tip of the Kola Peninsula in the East. In addition, unknown varieties of Saami were widely spoken also further south in Finland and Karelia in the Middle and Early Modern Ages, but they became extinct under the pressure of the Finno-Karelian agricultural expansion. It is likely that many Finnic loanwords in Saami have been mediated to the surviving Saami languages by their extinct sister languages further south, just as more recent borrowings from Finnish and Karelian have been mediated from the central and eastern Saami area further to southwestern Saami on the Scandinavian peninsula. This presentation mainly concentrates on North Saami and its predecessor Proto-Saami, but examples from other Saami languages will be drawn

where they provide relevant additional information.

Saami is known to have been in intensive contact with Finnic for a long time. The number of Finnish and older Finnic loanwords in present-day North Saami is probably over a thousand. The majority of these borrowings are quite recent. Lehtiranta's (1989) comparative vocabulary of the Saami languages lists 153 Finnic loanwords in Proto-Saami; that is, slightly over 10% of the total of 1479 reconstructed basic stems. The actual number of Finnic loans in Proto-Saami must have been higher, though, as only a part of the vocabulary can be reliably reconstructed; the 1479 stems can naturally not represent the full inventory of Proto-Saami lexical roots. Moreover, core vocabulary is overrepresented in a reconstructed corpus, whereas peripheral lexical items have probably included more borrowings.

Etymological research has revealed that even the earliest Finnic loanwords in Proto-Saami can be divided into several consecutive strata. On phonological grounds some loanwords must have been adopted during the Pre-Finnic phase before such Proto-Finnic sound changes as *$š$ > *h, for instance, had taken place—cf. North Saami *vašši* 'hatred' < Proto-Saami *$v\check{e}\check{s}\bar{e}$ << Pre-Finnic *$viša$ (> Finnish *viha* 'hatred').[1] Thus, Saami and Finnic must have been in contact for a very long time. During known history this contact has been characterized by bilingualism among the Saami in the contact zone, and it is likely that conditions have been similar in the more remote past, too. The bilingual speakers in the contact zone have probably been the ones who have adopted the majority of Finnic loanwords and mediated them to the rest of the Saami area; thus, the sociolinguistic conditions must have favored the emergence of etymological patterns of nativization.

On the other hand, Saami has also contributed loanwords to Finnish, albeit to a lesser extent. In the northernmost dialects of Finnish the number of Saami loanwords amounts to hundreds, but there are also dozens of borrowings adopted from extinct Saami languages in the Finnish dialects spoken in central and southern Finland. Because the loans in both directions have been adopted in the same contact situation, the vowel substitution patterns of the Saami loanwords in Finnish will also be briefly discussed below.

3.2   *A summary of historical phonology*

As the main aim of this study is to examine etymological nativization, the substitution patterns of all Finnish vowels are not taken into consideration. With regard to stressed vowels, the ones occurring in the first syllable, only the sub-

---

[1]The transcriptions in this paper follow standard orthographies of the Saami languages, except for Kildin and Ter Saami, which are transcribed phonologically.

Proto-Uralic				Proto-Finnic/ Finnish			
i	ü		ï	u	i	y		u
e				o	e	ö		o
ä				a	ä			a

Table 2: *Proto-Uralic and Finnic vowels*

stitution patterns of Finnic short vowels are discussed; the Finnic long vowels show a low frequency in inherited vocabulary, and they partially represent the result of secondary Proto-Finnic developments such as loss of intervocalic *w, *j, *x or *ŋ. Also the stressed short vowel *ö* is left outside the treatment, as it is a Proto-Finnic innovation which appears mainly in sound-symbolic vocabulary and has no regular Proto-Uralic source. The treatment of unstressed vowels is restricted to stem-final position in the second syllable.[2]

First, it is necessary to summarize the main lines of Finnic and Saami vowel history. As regards short stressed vowels, the present day Finnish system reflects the common Proto-Uralic paradigm almost unchanged (see Table 2). The only exceptions are the addition of *ö* to the vowel paradigm and the merger of Proto-Uralic *ï and *a into *a. The latter change is apparently very early, as it is shared with two other branches, Saami and Mordvin.[3] Because neither Saami nor Finnish show any difference in the reflexes of Uralic *ï and *a, this distinction is of no concern to the present study. <y> in the Finnish orthography stands for /ü/.

In contrast to Finnic, Proto-Saami completely reorganized the Uralic vowel system via a complex series of developments involving shifts, mergers, and splits. Also the vowel harmony characteristic of Finnic and many other Uralic languages was lost, and many stressed vowels were lengthened and subsequently diphthongized. The result of this "great Saami vowel shift" was radically different from both the Uralic and the Finnish vowel paradigm (see Table 3).

In North Saami the Proto-Saami system of stressed vowels was preserved as such, save for the unconditioned shift *ë > a (the symbol <ë> indicates a

---

[2]The treatment is based on generally accepted Uralic reconstructions and sound laws. Detailed accounts of historical phonology can be found in handbooks such as Korhonen (1981) and Sammallahti (1998) (on Saami) and Laanest (1982) (on Finnic). For more information on the phonological reconstruction of Proto-Uralic in general see Sammallahti (1988). Additional examples of each vowel correspondence can be found in Sammallahti (ibid.), Korhonen (1981), Itkonen & Kulonen (1992–2000), and Lehtiranta's (1989) comparative Saami vocabulary.

[3]According to Sammallahti (1988) *ï and *a have merged also in Mari. However, the evidence is ambiguous: Proto-Uralic *ï seems to have developed into Mari *ö or *ü under unclear conditions, whereas PU *a is always reflected either as *a* or *o*.

Proto-Uralic				Proto-Saami					North Saami				
i	ü	ï	u	ie	i		u	uo	ie	i		u	uo
e			o	ea	ë		o	oa	ea	(e)		o	oa
ä			a		ā					á	a		

Table 3: *Proto-Uralic and Saami*

mid central unrounded vowel) and a few minor combinatory developments (see Table 3). The letter <*á*> stands for long /*ā*/. The correspondences between the Finnic and Saami stressed vowels, together with an example word of each correspondence, are listed in Table 4.[4] As the table shows, all the differences in the reflexes of first syllable short vowels in the Finnish and Saami cognate pairs are due to sound changes that have taken place in Saami, whereas Finnic has preserved the original vowel unchanged.

3.3 *The substitution of first syllable high vowels*

3.3.1 *The treatment of* i *and* u.   The Finnish stressed high vowels *i* and *u* show two patterns of nativization in loanwords. A number of cases display etymological substitution: the regular diachronic correspondents of F *i* and *u*—SaaN *a* and *o*, respectively—have been substituted for them. On the other hand, F *i* and *u* have frequently also been rendered with their nearest phonetic equivalents, SaaN *i* and *u*. The following examples illustrate this dual patterning (a more extensive list of examples can be found in Appendix A):[5]

(2)   a.   Etymological substitution:
                 F *i* > SaaN *a*   F *hinta* 'price' > SaaN *haddi* id.
                 F *u* > SaaN *o*   F *surma* 'bane, death' > SaaN *sorbmi* id.

         b.   Phonetic substitution:
                 F *i* > SaaN *i*   F *hirsi* 'timber' > SaaN *hirsa* id.
                 F *u* > SaaN *u*   F *surkea* 'miserable' > SaaN *surgat* id.

One might hypothesize that the dual correspondences result from two chronologically distinct periods of borrowing, in which case it would not be necessary to postulate two alternative strategies of phonological nativization. Indeed, such an explanation has been attempted. Korhonen (1981) has treated the phonological nativization of Finnic loanwords in Saami in his excellent handbook of Saami

---

[4] F = Finnish; SaaN = North Saami; PS = Proto-Saami; PU = Proto-Uralic.

[5] I apply the term 'phonetic substitution' to any sound substitution that has a straightforward phonetic motivation (for example, *i* > *i*), as opposed to phonetically unmotivated nativization strategies such as the etymological substitution *i* > *a*.

	F	SaaN	PS	PU	conditions
1a)	*ä*	*ie*	**ie*	**ä*	in PU **i*-stems
	käsi	*giehta*	**kietë*	**käti* 'hand, arm'	
1b)	*ä*	*á*	**ā*	**ä*	in PU **ä*-stems
	äijä	*áddjá*	**ājjā*	**äjjä* 'old man'	
2a)	*e*	*a*	**ë*	**e*	in PU **i*-stems
	mene-	*manna-*	**mënë-*	**meni-* 'to go'	
2b)	*e*	*ea*	**ea*	**e*	in PU **ä*-stems
	elä-	*ealli-*	**ealē-*	**elä-* 'to live'	
3)	*i*	*a*	**ë*	**i*	
	nimi	*namma*	**nëmë*	**nimi* 'name'	
4)	*y*	*a*	**ë*	**ü*	
	kynsi	*gazza*	**këncë*	**künči* 'nail'	
5)	*a*	*(v)uo*	**(v)uo*	**a* (and **i*)	*vuo-* in initial
	kala	*guolli*	**kuolē*	**kala* 'fish'	position
6a)	*o*	*(v)uo*	**(v)uo*	**o*	in PU **i*-stems; *vuo-*
	koski	*guoika*	**kuoškë*	**kośki* 'rapids'	in initial position
6b)	*o*	*oa*	**oa*	**o*	in PU **a*-stems
	olka	*oalgi*	**oalkē*	**wolka* 'shoulder'	
7)	*u*	*o*	**o*	**u*	
	muna	*monni*	**monē*	**muna* 'egg'	

Table 4: *The correspondences between Finnish and Saami stressed vowels*

historical linguistics. He sees the two different substitutes for F *i* as due to distinct periods of borrowing: the loans showing SaaN *a* (< PS *ë̆*) would reflect an older period, whereas the words that have retained *i* would be younger loans (ibid.:80-82). However, the stratification is actually circular because it is only based on the particular vowel correspondence itself, and a closer examination reveals that this correspondence is not a valid criterion for determining the age of borrowings.

Let us first consider phonetic nativization. Unsurprisingly, there are plenty of young-looking loans showing the substitutions *i* > *i* and *u* > *u* (see Appendix A for examples). But there are also loans showing the same treatment which on account of their distribution must have been adopted considerably earlier; examples include SaaN *ihtit* 'to come in sight' (cf. F *itää* 'to germinate, sprout'), *girjjat* 'spotted, mottled, multi-colored' (F *kirjava* id.), *gurra* 'gorge; cleft' (F *kuru* id.), *muiti-* 'to remember' (F *muista-* id.), *uksa* 'door' (Estonian *uks* id.). The distribution of these words reaches the southwesternmost and easternmost Saami languages, and hence Lehtiranta (1989) reconstructs them into Proto-Saami. Thus, the correspondences F *i* ∼ SaaN *i* and F *u* ∼ SaaN *u* are not reliable indicators of late borrowing.

Turning to etymological nativization, the substitutions F *i* > SaaN *a* and F *u* > SaaN *o* have occurred in many loanwords that are demonstrably younger than Proto-Saami. For instance, loans that retain initial *h-* must belong to this category, because Proto-Saami lacked the phoneme *h* and this foreign sound became established only later via loanwords (earlier loans show Ø- as the substitute for foreign *h-*). Examples of retention combined with etymological nativization include SaaN *haddi* 'price' (< F *hinta* id.), *hapmu* 'craving (for a particular food)' (< F *himo* 'lust, desire, craving'), SaaN *holbi* 'selvage' (< F *hulpio* id.) and SaaN *hohpi* 'scanty, short-lasting' (< F *hupa* id.). In some cases the Finnish loan original itself can be shown to be a rather recent loanword, as is the case with SaaN *barta* 'cabin' (< F *pirtti* id.); the Finnish item derives from Russian; see also dialectal Russian *nepm* 'a peasant's hut' (< *pĭrtĭ*). On the other hand, there are items showing etymological nativization in much older layers of borrowings as well, such as SaaN *vašši* 'hatred' which must have been borrowed from Pre-Finnic *viša* before the shift *š > Proto-Finnic *h (cf. F *viha* 'hatred').

Thus, the two Saami reflexes of F *i* and *u* do not consistently fall into chronologically distinct layers of loans. Both correspondences are attested in younger and older borrowings alike, and hence there is no alternative to postulating two alternative strategies of sound substitution. This interpretation is further supported by occasional dialectal oscillation between SaaN *i* and *a* in Finnic loans: cf. SaaN *hirbmat* ∼ *harbmat* 'horrible' (<< F *hirmu* 'horror'). There are also cases where the same word has been borrowed twice, each time undergoing a dif-

ferent pattern of nativization: cf. SaaN *hapmu* 'craving (for a particular food)' vs. *hipmu* 'lust, desire' (< F *himo* 'craving, desire') and SaaN *harca-muorra* 'gallows' (*muorra* 'tree') vs. *hirsa* 'timber' (< F *hirsi* 'timber', *hirsi-puu* 'gallows'). Note that all of these varying cases must be rather recent loans due to their initial *h-*.

The occurrence of etymological nativization makes it more difficult to distinguish between borrowings and true cognate items. The cases of etymological nativization discussed above and listed in Appendix A include only items that can be shown to be certain or at least very probable borrowings on the basis of other criteria. In many cases the consonant correspondences reveal this. For instance, inherited vocabulary displays the sibilant correspondences F *s* ∼ SaaN *s* (F *syli* 'lap, fathom' ∼ SaaN *salla* id.), F *s* ∼ SaaN *č* (F *silmä* 'eye' ∼ SaaN *čalbmi* id.), and F *h* ∼ SaaN *s* (F *hirvi* 'elk' ∼ SaaN *sarvva* id.). Thus, correspondences such as F *h* ∼ SaaN Ø (F *hirveä-* 'to dare to' ∼ SaaN *arva-* id.), F *h* ∼ SaaN *h* (F *himo* 'craving, desire' ∼ SaaN *hapmu* 'craving for a particular food'), F *h* ∼ SaaN *š* (F *viha* 'hatred' ∼ SaaN *vašši* id.), F *s* ∼ SaaN *š* (F *silta* 'bridge' ∼ SaaN *šaldi* id.) are indicative of borrowing. A number of cases are revealed as borrowings by diverse non-phonological criteria: the Finnic item may be morphologically complex, whereas the Saami item is not (SaaN *sorbmi* 'bane, death' < F *surma* id., a derivative of Proto-Finnic **sure-* 'to grieve; to die'); the semantics of the word can be identified with a particular phase of borrowing (SaaN *rohkadalla-* 'to pray' < F *rukoile-* id. was probably adopted during the introduction of Christianity); the Finnic item has another cognate in Saami (SaaN *mohti* 'mud' < F *muta* id., whereas SaaN *mođđi* 'mud' ∼ F *muta* < Proto-Uralic **muδ'a* 'earth, soil'); the Finnic item has an etymology which excludes the possibility of common inheritance (SaaN *barta* 'cabin' < F *pirtti* id. < Russian).

However, there remain many cases where borrowing appears likely or even obvious, but no suitable formal criterion for demonstrating this can be found. Words which show a narrow distribution in Saami languages, as opposed to a wide distibution in Finnic, are likely to be loanwords. Such cases include SaaN *dorka* 'fur; fur coat' (cf. F *turkki* id.), SaaN *jolgat* 'impudent, shameless' (cf. F *julkea* id.), SaaN *gobmi* 'ghost' (cf. F *kumma* 'strange', der. *kummitus* 'ghost'), SaaN *ropmi* 'ugly' (cf. F *ruma* id.). Some of these words also show phonotactic clues suggesting that the word can hardly be of Uralic origin, such as the three-consonant cluster *-rkk-* in *turkki* and the geminate nasal *-mm-* in *kumma*. Thus, the number of borrowed items that have undergone etymological nativization must in reality be significantly higher than the number of certain examples of the phenomenon.

The material demonstrates that two rival patterns of sound substitution can coexist in a language for a long time. A 'principle of phonetic nearness' requires

the preservation of vowel quality in loans, i.e. the phonetically motivated substi-
tutions F *i* > SaaN *i* and F *u* > SaaN *u*. On the other hand, the analogy of existing
cognate items suggests that SaaN *a* and *o* ought to be substituted for F *i* and *u*,
respectively. Needless to say, not only true cognates exert this analogical influ-
ence. The loanwords that are adapted to the regular sound correspondences start
serving as new models, upholding and strengthening the pattern. Similar influ-
ence may be exerted even by quasi-cognates such as F *kulta* 'gold' ∼ SaaN *golli*
id. and F *lukko* 'lock' ∼ SaaN *lohkka* id., which have been separately borrowed
into Finnic and Saami from Scandinavian.

The dual treatment of Finnic stressed *i* and *u* in loanwords shows that in this
case etymological nativization must be characterized as a tendency rather than
a norm. Neither etymological nor phonetic substitutions clearly dominate in the
material. Apparently, even the existence of a large number of 'counterexamples'
to a given substitution model does not need to result in the disruption of patterns
of etymological nativization; the speakers are able to detect correspondences
such as F *u* ∼ SaaN *o* even despite the fact that there are numerous lexical pairs of
the type F *kuru* 'gorge' ∼ SaaN *gurra* id. which contradict this correspondence.

3.3.2 *The treatment of* y. We can now take a look at the treatment of F *y*
in loans, which is markedly different from that of *i* and *u*. Considering pho-
netic substitution, either the labiality or the palatality of the vowel has had to
be compromised in borrowings because Saami has no phoneme *y*. The phoneti-
cally predictable substitutes are thus SaaN *i* and *u*, both of which occur. Saami
i is much more common; examples include F *kylä* 'village' > SaaN *gilli* id., F
myrkky 'poison' > SaaN *mirku* id., F *pysy-* 'to stay' > SaaN *bissu-* id., F (obso-
lete) *yrkä* 'bridegroom' > SaaN *irgi* id. The substitution F *y* > SaaN *u* is rarer,
but there are a couple of examples: F *tyhjä* 'empty; trifle' (Pre-Finnic **tüšjä*) >
SaaN *dušši* 'trifle, nothing', F *ystävä* 'friend' > SaaN *ustit* id.

In contrast with the treatment of F *i* and *u*, etymological nativization of F
y has been rare. There appears to be only one indisputable loan item in North
Saami where SaaN *a* (< Proto-Saami **ë*) has been substituted for F *y*, namely
SaaN *šadda-* 'to be born; to grow; to become' < F *synty-* 'to be born'; even
this seems to be a very old borrowing, to judge from its uniform distribution in
Saami and its basic vocabulary status. Apparently, in all the other instances, quite
regular phonetically motivated nativization has taken place. In the eastern Saami
languages there are more cases showing a reflex of Proto-Saami **ë* (> SaaK ẹ /
a̲) in the place of Finnic *y* in loanwords: F *kylvä-* 'to sow' > SaaK *ka̲ʹĪve-* id., F
(dialectal) *kyly* 'bath' (+ *pirtti* 'cabin') > SaaK *keĪ-pe̅rt* 'sauna bath', F *kynnys*
'threshold' > SaaK *kẹnda̲s* id., F *lypsä-* 'to milk' > SaaK *la̲ʹpse-* id., F *pysy-* 'to
stay' > SaaK *pẹššẹ-* id. Note that some of these words have also been borrowed

into North Saami, but show phonetic nativization (F *y* > SaaN *i*): cf. SaaN *gilvi-* 'to sow', *bissu-* 'to stay'. There are also some similar examples in Inari Saami, cf. SaaI *kopšâ-* 'to cook (intr.)' (< **këpšë-*) vs. SaaN *giksa-* id. (< **kipsë-*) < F *kypsy-* id. However, phonetic nativization of F *y* has still been more common than etymological nativization also in the eastern Saami languages.

It is not clear why etymological nativization of F *y* has been so rare. However, one explanation can be tentatively suggested. In addition to etymological nativization, Hock (1986:393-394) discusses another type of sound substitution where the principle of phonetic nearness is broken, which he terms 'system-based substitution'. This means that the phonetically closest phoneme in the target language is not used as the substitute for a given sound in the source language because it is already "reserved" as the substitute for another sound. For example, in the English loanwords of Hindi, plain stopshave been substituted for English aspirated stops because the Hindi aspirated stops are already "reserved" as substitutes for English unvoiced fricatives. This results in nativization patterns such as English *proof* [p^{h}rūf] > Hindi *prūp^h* 'proof' (example taken from Hock). Thus, it can be suggested that North Saami *a* is perceived as "reserved" as the substitute for F *i*, and that this resulted in the tendency to avoid substituting the same sound for another foreign phoneme, F *y*. However, this explanation is not entirely satisfactory, because the question of why etymological nativization of F *y* has been much more common in eastern Saami than in North Saami remains unaccounted for.

3.4 *The substitution of first syllable mid vowels*

In contrast to the treatment of Finnish high vowels, the mid vowels *e* and *o* show simple patterns of nativization. Leaving aside a couple of sporadic exceptions, Finnish *e* and *o* are rendered with the Saami diphthongs *ea* and *oa* in borrowings of all ages. A couple of random examples illustrate this: F *pelto* 'field' > SaaN *bealdu* id., F *merkki* 'sign' > SaaN *mearka* id., F *merta* 'fish trap' > SaaN *meardi* id., F *leski* 'widow' > SaaN *leaska* id.; F *loppu* 'end' > SaaN *loahppa* id., F *oppi-* 'to learn' > *oahppa-* id., F *morsian* 'bride' > SaaN *moarsi* id., F *sota* 'war' > SaaN *soahti* id. The only systematic exception to these substitutions is F *o* > SaaN *uo* after the initial glide *v-*: F *voitta-* 'to win' > SaaN *vuoiti-* id., F *voima* 'power' > SaaN *vuoibmi* id., F *voihki-* 'to moan, groan' > SaaN *fuoiku-* id. (< **vuoiku-*). These cases receive a natural explanation from Saami phonotaxis: SaaN *v-* can never be followed by the diphthong *oa*, whereas the sequence *vuo-* is common. Thus, the substitution *o* > *uo* has been necessary in order to preserve the initial *v-* of the donor language.

The substitution F *e* > SaaN *ea* can be easily explained as motivated by

purely phonetic factors. Proto-Saami had no vowel *e*, and even today *e* occurs in North Saami only in conditioned environments as a morphophonological alternant of the diphthong *ea* (excluding only partially nativized internationalisms). Thus, *ea* is in fact the phonetically closest generally applicable substitute for F *e*; it is the only structurally unrestricted vowel in the system that has a qualitatively identical initial component.

It is in principle possible, though, that the substitution *e > ea* has also an etymological component to it. Proto-Uralic *e has metaphonically split in Proto-Saami according to the original height of the second syllable vowel, so that in high-vowel stems *e developed into Proto-Saami *ë but in low-vowel stems into Proto-Saami *ea (see 3.2). Thus, the cognate items of the latter type may also have contributed to the popularity of the substitution pattern F *e* > SaaN *ea*. It must be kept in mind, though, that the substitution *e > ea* is attested also in words of the type *merkki* 'sign' and *leski* 'widow' (> SaaN *mearka, leaska*) which show non-low vowels in the second syllable, and in such cases the substitution is not etymologically adequate.

An argument against the relevance of the etymological correspondence Saami *ea* ∼ F *e* must be mentioned, though. The substitution F *e* > Proto-Saami *ë (> SaaN *a*) is, in contrast, almost never attested in borrowings even though it occurs in cognate items. The loanword SaaN *darvi* 'tar' (< PS *tërvē ? < F *terva* id.) may be the only exception to this rule, and even here the Saami word might perhaps instead be a separate borrowing from Indo-European (cf. English *tar* and its cognates). If other cases showing this substitution exist, they must be very rare indeed. It must be noted that even in the case of SaaN *darvi* the substitution *e* > *ë is not in fact etymologically adequate, because the correspondence F *e* ∼ PS *ë never occurs in cognate items that have a Uralic low vowel stem.

The reason for the lack of the substitution F *e* > PS *ë could perhaps be that the metaphonic split of the Uralic vowel *e in Proto-Saami has obscured the patterns of sound correspondence and thus blocked the operation of etymological nativization. Sound correspondences that are environmentally conditioned are naturally more difficult for the speakers to notice than unconditioned correspondences of the type F *i* ∼ SaaN *a*. On the other hand, this explanation is not very satisfying, because it was already demonstrated that the occurrence of a relatively high number of apparent 'counterexamples' to a given sound correspondence does not need to prevent etymological nativization from taking place (see 3.3.1).

The background of the substitution of F *o* > SaaN *oa* is evidently more complex than that of F *e* > SaaN *ea*. The first thing that must be noted is that it can be based on no phonetic or phonotactic motivation whatsoever. Stressed *o* is a completely unmarked vowel in Saami and there is thus no structural reason why

it could not have been substituted for F *o*. On phonetic grounds one would expect to find loanwords showing this substitution, but curiously, it is in fact never attested in borrowings save for a handful of recent adoptions such as SaaN *horbmá* 'willow herb' < F *horsma* ∼ (dialectal) *horma* id., SaaN *bojá* 'boy (pejorative)' < F *poju* id. and SaaN *somá* 'fun, nice' < F *soma* 'pretty, neat' (note that the last two words lack consonant gradation, which demontrates that they are very young loans). Thus, there exists a case where the 'principle of phonetic nearness' is apparently almost completely overridden by other contradicting factors that influence sound substitution.

Etymological nativization could in principle partially account for the phenomenon. Proto-Uralic **o* has—quite like Proto-Uralic **e*—undergone a metaphonic split in Proto-Saami: in stems with low vowels in second syllable it was diphthongized to Proto-Saami **oa*, but before second syllable high vowels to **uo* (see 3.2). But the substitution F *o* > SaaN *oa* is attested in all stem types regardless of their stem vowel, whereas the substitution F *o* > SaaN *uo* has very rarely taken place save for after initial *v-* where it has a special phonotactic explanation. There are a couple of sporadic exceptions, such as SaaN *juovka* 'horse hair' < F *jouhi* id. and SaaN *ruoivvis* 'sheaf of hemp or flax' < F *roivas* id., but in general the substitution *o* > *uo* has been so rare that it is almost unknown. The situation is thus rather similar to the treatment of F *e*. If one invoked etymological nativization, the rarity of the substitution F *o* > SaaN *uo* would remain a mystery—exactly as the lack of the substitution F *e* > PS **ë* (> SaaN *a*). On the other hand, one cannot resort to phonetic nativization, because the lack of the phonetically unmarked substitution F *o* > SaaN *o* violates the principle of phonetic nearness. Evidently, some other explanation is needed.

It could be surmised that the substitution pattern *o* > *oa* has been analogically generalized to all stems from the low-vowel stems where it was originally regular. But this hardly amounts to a genuine explanation, because it leaves two questions unanswered. First, it was shown in section 3.3.1 that etymological nativization does not need to prevent phonetic nativization from taking place; instead, two rival patterns of sound substitution can coexist, and hence one is left with no explanation for the lack of the phonetically unmarked substitution F *o* > SaaN *o*. Second, it remains unaccounted for why the substitution *o* > *uo* could not have been generalized instead.

To solve the problem, two additional factors must be taken into account. First, analogical influence from the substitution pattern F *e* > SaaN *ea* likely plays a role in the phenomenon. If F *e* is rendered in Saami as a falling diphthong with an identical first component, this provides a model for treating its velar pair *o* the same way—hence, F *o* > SaaN *oa*. Second, keeping Hock's concept of 'system-based substitutions' in mind, it can be suggested that the substitution *o*

> *oa* is motivated by the fact that the phonetically unmarked substitute, SaaN *o*, is considered already "reserved" as the substitute for F *u*. This would also neatly explain why the phonetically least marked alternative F *o* > SaaN *o* is almost never attested in loans. However, this explanation suffers from the weakness that there is no absolute need for keeping the substitutes for two vowels separate; this is demonstrated by the fact that both F *e* and *ä* show identical substitutes in Saami, namely SaaN *ea* (see 3.5).

It is not necessary to assume that any single one of the factors discussed above plays the decisive role in determining the treatment of F *o* in borrowings. If anything, the examples above demonstrate that sound substitution can be influenced by a multitude of factors, which may either produce contradicting patterns and rival tendencies (as in the case of F *i* and *u*) or coincide to strengthen an already existing tendency (as may be the case with the treatment of F *o*).

3.5   *The substitution of first syllable low vowels*

The Finnish low vowels *ä* and *a*, too, show only a single substitute each. Save for a couple of isolated exceptions, SaaN *ea* (< PS **ea*) has always been substituted for F *ä*, and SaaN *á* (< PS **ā*) for F *a*. A couple of random examples serve to illustrate this: F *välttä-* 'to avoid' > SaaN *vealti-* id., F *väki* 'crowd, people' > SaaN *veahka* id., F *käy-* (preterite stem *käv-*) 'to go; to visit; to happen' > SaaN *geavva-* 'to happen', F *hätä* 'distress, danger, need' > SaaN *heahti* id.; F *alka-* 'to begin' > SaaN *álgi-* id., F *kaima* 'namesake' > SaaN *gáibmi* id., F *tajua-* 'to understand, realize' > SaaN *dádjad-* 'to find one's way', F *vastaa-* 'to answer' > SaaN *vástid-* id.

Both of these patterns are phonologically motivated, or at least they have been so until very recently. In Proto-Saami **ā* was the only low vowel in the system and thus the only phonetically natural substitute for F *a*. Its later descendant, North Saami *á*, is still a natural substitute for foreign *a*; in most dialects <*á*> is pronounced as long /*aa*/, but in certain dialect areas it has been umlauted to /*ä(ä)*/ in conditioned environments. North Saami short /*a*/ (dialectally weakly labialized /*â(â)*/), which developed through lowering from Proto-Saami **ë*, would provide a phonetically sensible alternative, but nevertheless, the substitution F *a* > SaaN *a* (< **ë*) is surprisingly rare even in late loanwords (but cf. F *paha* 'bad; evil' > SaaN *bahá* id. and F *saha* 'saw' > SaaN *sahá* id.). This might perhaps be due to system-based substitution once again: SaaN *a* may be perceived as "reserved" as the substitute for F *i* (cf. 3.3, 3.4).

However, the explanatory power of system-based substitution restrictions is weakened by the case of F *ä*. As noted in section 3.4, F *e* is always rendered as SaaN *ea* in loanwords, but despite this SaaN *ea* is at the same time used as the

exclusive substitute for F *ä* as well. Thus, the phonological distinction between F *ä* and *e* is categorically lost in loanwords, and there seems to be no tendency, not even a weak one, which would aim at preserving this opposition.

Another curious feature of the treatment of Finnish low vowels is that they never appear to become subject to etymological substitution. The development of Uralic *ä* in Saami also involves a metaphonic split into Proto-Saami *ie* in high vowel stems and Proto-Saami *ā* (> SaaN *á*) in low vowel stems (see 3.2). However, the substitution F *ä* > SaaN *ie* is not attested in loanwords and even examples of the substitution F *ä* > SaaN *á* are extremely rare (but cf. F *häipy-* 'to disappear' > SaaN *áiba-* 'to be missing', F (obsolete) *änki* 'force, power' > SaaN *ágga* 'objection, excuse; hindrance'). One could hypothesize here, too, that the split of the vowel has caused the etymological sound correspondences to become more difficult to recognize, but this does not explain why both of the regular correspondences have been abandoned as models of nativization. It is true that there are also a couple of words where Proto-Uralic *ä* irregularly developed into PS *ea* (for example, PU *pälä* 'side; half' > SaaN *bealli* id.), but a change which is irregular to begin with cannot offer a plausible model for etymological nativization.

Moreover, Uralic *a* has not undergone a metaphonical split, as it has regularly developed into the Saami diphthong *uo* in all contexts. This correspondence is attested in numerous basic vocabulary items which could be imagined becoming easily associated by bilingual speakers: cf. F *pala-* 'to burn' ∼ SaaN *buolli-* id., F *kala* 'fish' ∼ SaaN *guolli* id., F *jalka* 'foot, leg' ∼ SaaN *juolgi* id., F *kaksi* 'two' ∼ SaaN *guokte* id., F *sata* 'hundred' ∼ SaaN *čuoδi* id., F *kanta-* 'to carry' ∼ SaaN *guoddi-* id. One would expect that the substitution of F *a* had been modeled after such examples in at least some loanwords, but, for unknown reasons, the relation F *a* ∼ SaaN *uo* is entirely unattested in loan vocabulary.

3.6 *The substitution of unstressed stem vowels*

We can now turn to the treatment of unstressed second-syllable vowels in borrowings. First, the reflexes of the primary Proto-Uralic stem types will be taken into consideration. The bulk of the Proto-Uralic word roots were bisyllabic and had a stem ending either in the low vowel *a* or *ä* (frontness depending on vowel harmony) or in the high vowel *i* (by some scholars reconstructed as *e* instead). In Finnish a low stem vowel is preserved as such, whereas the reflexes of the *i*-stems now end in *-e-*, which alterates with *-i* in final position: cf. F *käsi* 'hand, arm' : GenSg *käde-n* < PU *käti* : *käti-n*. In contrast, Proto-Saami completely reorganized also the unstressed vowel system. Vowel harmony was abolished, and the *a*- and *ä*-stems coalesced into Proto-Saami *ē*-stems. The

	F	SaaN	PS	PU
1)	*a*	*i*	**ē*	**a*
	muna	*monni*	**monē*	**muna* 'egg'
2)	*ä*	*i*	**ē*	**ä*
	silmä	*čalbmi*	**čëlmē*	**śilmä* 'eye'
3)	*-e- ∼ -i*	*a*	**ë*	**i*
	käsi (käte-)	*giehta*	**kietë*	**käti* 'hand, arm'

Table 5: *The Finnish and Saami reflexes of Proto-Uralic unstressed stem vowels*

Uralic **i*-stems became Proto-Saami **ë*-stems. In North Saami PS **ē* became *i*, whereas PS **ë* was lowered to *a*. The resulting correspondences can be seen in Table 5.

These correspondences have given rise to a highly systematic pattern of etymological nativization. In borrowings of all ages the Finnic stem vowels *a*, *ä* and *e* have usually been converted into their regular correspondents in Saami, as illustrated by the following cases:

F *a* > SaaN *i*	F *hinta* 'price' > SaaN *haddi* id.
F *ä* > SaaN *i*	F *silmä* 'eye' > SaaN *šalbmi* 'ax eye, needle eye'
F *-e-* (∼ *-i*) > SaaN *a*	F *arki (arke-)* 'workday' > SaaN *árga* id.

More examples of each substitution can be found in Appendix B (the list is far from exhaustive, though, as a complete corpus would amount to hundreds of words). In fact, the etymological nativization of the Finnish stem vowels *a*, *ä* and *e* has been so regular that it can be regarded as a rule. There is only one recurring exception, a group of borrowings exhibiting the substitution F *a* / *ä* > SaaN *á*: cf. F *paha* 'bad; evil' > SaaN *bahá* id., F *palkka* 'salary' > SaaN *bálká* id., F *vielä* 'still, yet' > SaaN *velá* id. However, phonological features such as intervocalic *-h-* and the stressed vowel *-e-* show that these loans are quite young, and in the older strata of borrowings exceptions are rare in the extreme. Moreover, even in young loanwords etymological nativization abounds.

The regularity is especially striking when one considers the actual correspondences involved. In the nominative singular of nouns there is a crosswise pattern where F *-i* corresponds to SaaN *-a*, whereas F *-a* corresponds to SaaN *-i*. One would expect the mimicry of this type of correspondence to be less common because it so directly contradicts the principle of phonetic nearness. But curiously, examples of phonetically unmarked substitutions of the type F *i* > SaaN *i* and F *a* > SaaN *a* are practically nonexistent, young borrowings included. Nevertheless, a case worth noting is SaaN *govva* 'picture' < F *kuva* id., where the exception regarding the stem vowel is especially puzzling because the word still shows the

etymological substitution F *u* > SaaN *o* in the stressed syllable (see 3.3). Notably, even this word shows the expected **ē*-stem in eastern Saami, cf. SaaI *kove* 'picture', SaaT *koṿṿe* 'figure, shape' (< PS **kovē*), and in Lule Saami there is oscillation between the two stem types: SaaL *gåvvå* (< **kovë*) ~ *gåvve* (< **kovē*). Considering this, SaaN *-a* and SaaL *-å* might perhaps be due to some sort of irregular secondary development instead of sound substitution. Thus, there is only one somewhat dubious example of the substitution F *-a* > SaaN *-a*. The substitution F *i* > SaaN *i* remains entirely hypothetical; I have been able to find no examples, and if such exist they must be very rare indeed. (The retrogradical dictionary of North Saami (Sammallahti 2002) was employed in the search for examples of second-syllable vowel substitutions.)

An interesting question emerges: why has the etymological nativization of Finnish stem vowels been so pervasive that it has managed to almost completely abolish all contradicting tendencies? The number of potential models seems to provide the answer. Because the frequency of the Finnish stem vowels *a*, *ä* and *e* is very high in inherited vocabulary, there are many more Finnish-Saami word pairs which serve as models of these correspondences than there are of any correspondence involving first syllable vowels.

Finnish also has other stem types which have emerged through secondary developments. Of these, *i*-stems can be taken into consideration next. This group involves mainly loanwords and derivatives where *-i-* developed through a fusion of the Proto-Uralic stem vowel and a following glide **j*, and hence, the Finnish *i*-stems do not have a single regular diachronic correspondent in Saami. Therefore, it is interesting to note that loanwords quite systematically display the substitution F *-i* > SaaN *-a*, as in SaaN *báhppa* 'priest' < F *pappi* id. (for more examples see Appendix B).

This substitution pattern can have no straightforward phonetic or etymological motivation. Instead, it seems to have emerged on the basis of analogy. Finnish *e*-stem nouns show *-i* in final position, in the nominative singular. Thus, the distinction between *e*- and *i*-stem nouns is not visible in the nominative singular: cf. F *arki* 'workday' (GenSg *arje-n*) vs. *pappi* 'priest' (GenSg *papi-n*). This provides a basis for analogy, and once the substitution pattern was established for nouns, it is easy to imagine that it was generalized to verbs as well where the stem vowel can never in fact occur in word-final position. Moreover, it is likely that also the first-syllable substitution pattern F *i* > SaaN *a* (see 3.3.1) has influenced the treatment of F unstressed *i* in loanwords. The development of the stem vowel substitution *i* > *a* through analogy illustrates how speakers can perceive the underlying sound correspondences as "wrong" and generalize them into positions where they are not actually etymologically valid.

But even this finding does not seem to provide an explanation for all vowel

substitutions in borrowings from Finnish into Saami. I shall discuss one more example which illustrates how the morphology of the recipient language can influence sound substitution. There are many loanwords where SaaN *a* (< PS *ë̆*) has been substituted for F *u* or its harmonic pair *y* in stem-final position, e.g., S *gáhta-* 'to regret' < F *katu-* id., SaaN *áiba-* 'to be missing' < F *häipy-* 'to disappear'. In fact, such cases are more common than ones showing the phonetically expected substitution F *u* / *y* > SaaN *u* (see the examples in Appendix C). Etymological nativization does not provide an explanation for this pattern, because no analogous regular correspondence exists in cognate vocabulary. It is true, there are a couple of words where a Finnish *u*- or *y*-stem word has a Saami cognate with an *a*-stem, such as F *kysy-* 'to ask' ∼ SaaN *gahča-* id., F *suku* 'family, kin' ∼ SaaN *sohka* id., F *syksy* 'autumn' ∼ SaaN *čakča* id. But these cases are irregular and so rare that they do not provide plausible models for sound substitution. On the other hand, nothing suggests that analogy or 'system-based substitutions' would play a role here either.

Instead, the phenomenon may be a morphological adjustment by origin. A clue is provided by the fact that most items showing this substitution are verbs. While verb stems ending in *-u-* are phonotactically entirely normal in Saami, it seems that the need to disassociate borrowed verbs from certain derivative types hinders the application of the phonetically predictable substitution F *u* / *y* > SaaN *u*. The majority of SaaN *u*-stem verbs contain either the frequentative-continuative or the translative verb suffix *-u-*. The former suffix appears in such verbs as *luodd-u-* 'to split (many objects)' (cf. *ludd-e-* 'to split (one object)') and *čuorv-u-* 'to shout (continuously or many times)' (cf. *čurv-e-* 'to shout (once)'). Examples of the latter include *buoid-u-* 'to become fat' (< *buoidi* 'fat') and *stuorr-u-* 'to grow bigger' (< *stuoris* 'big'). Thus, frequentative or translative semantics would easily become associated with a new *u*-stem verb, and it is rational for the speakers to try to avoid this when the borrowed verb is not inherently frequentative or translative. After the substitution pattern had been established for verbs, it could have been analogically applied to some nouns, too, where no comparable structural motivation exists.

Admittedly, the explanation remains somewhat hypothetical because the tendency to avoid preserving the labial vowel in non-frequentative and non-translative verbs has not been exceptionless, as demonstrated by such loanwords as SaaN *áigu-* 'to intend to' < F *aiko-* id., SaaN *bissu-* 'to stay' < F *pysy-* id. (see Appendix C). But on the other hand, a quite different example of nativization involving stem vowels offers some support for this explanation. Finnish verbs with frequentative semantics have often taken the corresponding suffix *-u-* when borrowed into Saami. Examples of this include F *huiski-* 'to whisk' > SaaN *hušku-* 'to beat', F *poimi-* 'to pick up' > SaaN *boaibmu-* 'to peck (of birds)', F *raapi-*

'to scratch, scrape' > SaaN *ráhpu-* id., F *tiuski-* 'to snap at' > SaaN *divsku-* id., F *voihki-* 'to moan, groan' > SaaN *fuoiku-* id. In these cases the transformation of the stem vowel is not, strictly speaking, a sound substitution but rather a morpheme substitution: F *-i-* is a suffix which forms frequentative-continuative verbs, and it has been replaced with its functional equivalent, SaaN *-u-*. Even this pattern is far from regular, though, as there are also borrowed frequentative verbs showing the expected sound substitution F *i* > SaaN *a*: cf. F (dialectal) *tärppi-* 'to bang, batter' > SaaN *dearpa-* id.

3.7 *Etymological nativization in the Saami loanwords of Finnish*

Lastly, a brief discussion of the nativization of borrowings adopted from Saami to Finnish is in order. There are numerous such loanwords in the northernmost dialects of Finnish, and as might be expected, the etymological substitutions that have been discussed above are mirrored in borrowings in the opposite direction. This can be illustrated with the treatment of the representatives of Proto-Saami stressed *ë* and *o*. Loanwords from Saami have been adapted to the regular sound correpondences PS *ë* ∼ F *i* and SaaN *o* ∼ F *u*. Compare the following cases (for more examples see Appendix D):

PS *ë* > F *i*   PS *sëpēkkē* 'ski' (SaaN *sabet*) > F *sivakka* id.
PS *o* > F *u*   PS *moršë* 'walrus' (SaaN *morša*) > F *mursu* id.

In addition to such northerly dialect words there are also more ancient Saami loan items in the dialects of southern Finland. These must have been adopted in the Middle Ages or even in the prehistoric period when now-extinct Saami languages were still spoken in these areas. These loans also show etymological substitutions identical to those attested in later borrowings in the north. As examples of such more southerly loans one can mention F *vinka* ∼ *vinkka* 'hook (for hanging a cauldron over the fire)' < PS *vëŋkē* (> SaaN *faggi* 'hook'), F *viti* 'freshly fallen snow' < PS *vëcë* (> SaaN *vahca* id.), and F *ume* 'fog' < PS *omV-* (> SaaI *omo* id.).

Due to the regular vowel correspondences, such southerly Saami loanwords have often mistakenly been considered cognate in etymological references. For instance, in Itkonen & Kulonen (1992–2000) the words *vinka* and *ume* have been analyzed as cognate with the corresponding Saami items, and also the cognation of F *viti* and SaaN *vahca* is considered possible. However, in each case there is proof that the Finnish items must have been borrowed. First, *vinka* ∼ *vinkka* 'hook' shows an extremely narrow dialect distribution in Finnish, in addition to which the oscillation between a single and geminate stop is irregular and typical of loanwords. Second, *viti* 'freshly fallen snow' has failed to participate in the

Proto-Finnic sound change *ti > si, and hence it must be a loanword. Lastly, *ume* 'fog' can only derive from Saami because the Saami item is not inherited either, but a borrowing from Scandinavian (cf. Old Norse *húm* 'dusk, half-dark').

The classification of these and other similar Finnish words as inherited has perhaps been influenced by the tendency of previous research to underestimate the number of Saami borrowings in the Finnish dialects. Nevertheless, Finnish dialectal vocabulary contains surprisingly many Saami loanwords, and the influence of Saami can also be clearly seen in the numerous Saami substrate toponyms in southern Finland. Many of these borrowed place names have also undergone etymological nativization; cf. *ilomantsi* < PS *ëlēmāńčë* 'uppermost' (> SaaN *alimuš*) and *Pisa* < PS *pësē* 'sacred' (> SaaN *bassi*) (for more examples see Aikio In press).

4. *Discussion*

According to the traditional view, the phonological nativization of loanwords involves substituting the phonetically or perceptually nearest native equivalents for foreign sounds (Paul 1909:394-396; Bloomfield 1935:445-450). Modern textbooks describe the phenomenon in essentially the same terms, even though it is now more clearly recognized how structural differences between the donating and receiving languages on the phonotactic, morphological and morphosyntactic levels can restrict the possibilities of sound substitution. In addition to 'pure' sound substitution textbooks mention a variety of phenomena observed in the adaptation of loanwords, including phonological simplification, tone assignment, morphological and morphosyntactic adjustments, gender assignment, and reassignment of part of speech (Anttila 1989:156-158; Bynon 1977:225-231; Campbell 1998:60-64). Still, it is maintained (at least implicitly) that nativization aims at preserving the phonetic shape of the loan item as close as possible to its model in the source language. Occasional deviations from this prediction have been explained on the basis of factors such as folk etymology (Bloomfield 1935:450).

It has been pointed out, though, that this kind of 'principle of phonetic nearness' does not necessarily allow one to predict sound substitution because "neither the speaker himself nor the linguist who studies his behavior is always certain as to just what sound in his native tongue is most nearly related to the model" (Haugen 1950:215). Despite this, sound substitution often seems to be quite consistent within a linguistic community even in cases where multiple strategies are theoretically possible. To cite a well-known example, speakers of French substitute /s/ and /z/ for English /θ/ and /ð/, whereas speakers of German tend to apply /t/ and /d/, even though the phoneme inventories of both languages have

/t d s z/ (McMahon 1994:206). To explain this kind of consistency it has to be assumed that sound substitution strategies can become fixed through analogy. Notably, Heath (1984) has argued that the adaptation of loanwords often takes place according to such established 'routines', even though he employs this term primarily in reference to morphosyntactic adjustments.

The data treated in this paper demonstrates that also sound substitution rules which are neither phonetically motivated nor connected with the structure of the recipient langauge *per se* can become analogically fixed. The factors responsible for the emergence of such substitution models can be tentatively divided into three groups:

(a) The perception of existing sound correspondences between the contacting languages can provide an impetus to mimic those correspondences in loanwords, resulting in *etymological nativization*.

(b) The wish to maintain non-native phonological oppositions of the source language, i.e. a need to keep the substitutes for two phonemes separate, can produce *system-based substitution patterns*.

(c) Certain sound substitutions appear to be based on *systemic analogies*;the possibility of the substitution *o > oa* in the Finnic loanwords of Saami being modeled after *e > ea* was discussed in section 3.4.

As we are primarily concerned with etymological nativization here, we can now examine what kind of methodological implications the existence of this phenomenon has in the field of comparative linguistics. The received methods of lexical stratification can be first taken into consideration. It is a standard procedure to rigorously divide loanwords into consecutive strata according to their phonological shape, as the following quotes from Theodora Bynon sum up:

> ...where loan-words are concerned phonological correspondences may be set up by comparing the segments of a word in the donor language with the corresponding segments in the recipient language and... *for any specific point of time*, these correspondences are quite as regular as those between cognate words in related languages. (Bynon 1977:221; emphasis in the original)

> We arrive at the form at the time of borrowing by reconstructing backwards, using the rules of the historical grammar of the recipient language, until we reach a form *as close as possible* to that of the source in the donor language. (ibid.: 224-225; emphasis added)

As the data discussed in this paper should demonstrate, this classical picture is somewhat idealized and does not hold in every instance. Loanwords can display contradicting patterns of nativization so that the substitutes for a given phoneme

are not necessarily regular during any specific period of borrowing. Moreover, etymological nativization can deceptively cause individual loanwords to look older than they are. Reconstructing backwards until the 'closest phonetic match' may thus produce too early a date of borrowing, which could in turn lead to the accumulation of errors if the sequencing of lexical strata is used as key evidence in determining the relative order of sound changes in two languages, or in the dating of reconstructed proto-languages. Thus, where there is a long history of intensive contact between two languages, it is necessary to take the possibility of etymological nativization into consideration. For example, it was pointed out above that the chronology of Finnic borrowings in Saami has often been misinterpreted because of the failure to pay due attention to etymological sound substitutions (see 3.3). Likewise, some Saami loanwords in the Finnish dialects have been mistakenly analyzed as Finnish-Saami cognate items because they display regular vowel correspondence (see 3.7).

Etymological nativization might also turn out to clarify certain kinds of data which pose particular problems for linguistic reconstruction. In the case of Finnic and Saami, one is in the fortunate position of being able to operate with precise sound laws and proto-language reconstructions when stratifying loan vocabulary, as the sound correspondences between the languages and the diachronic changes underlying them have been worked out in detail. However, the situation would be quite different if one did not already know which correspondences are indicative of inheritance and which of borrowing, and if the contact setting were considerably more complex. It is easy to imagine a situation with more than two branches of the same family in intimate contact, each of which has borrowed heavily from the others. Clearly, in the absence of historical documents, such a situation would be very difficult to interpret in diachronic terms.

This brings us to the type of case which is illustrated by the Austronesian languages discussed by Grace (1996). One can deduce that extensive borrowing combined with etymological nativization could indeed result in just the kind of multitude of correspondences Grace observes between the New Caledonian languages. The main reason for this is that etymological nativization does not necessarily affect every phonological segment in the word, and as a result, loan items may display contradicting phonological features diagnostic of both inheritance and borrowing. If the contact history is long and each language in the *Sprachbund* contains several layers of borrowings from more than one source, the data can indeed become so saturated with sound correspondences that the underlying linguistic history is very difficult to reconstruct.

Whether such processes really can account for the linguistic development of the New Caledonian languages is, of course, a matter for Austronesian specialists to decide. Hopefully, though, a thorough analysis of easier cases such

as the contact history of Saami and Finnic helps to reveal how complex sound correspondences can arise through a combination of inheritance and borrowing between related languages. Even in the case of Saami, painstaking comparative analysis was initially needed to distinguish between loanwords and inherited vocabulary, and the setting up of a detailed lexical stratification has required us to broaden our conception of the processes involved in loanword nativization. Hopefully, this knowledge will then allow us to sharpen the tools of comparative linguistics in order to tackle some of the more difficult cases.

Appendix A: Examples of both etymological and phonetic nativization of Finnish **i** *and* **u** *North Saami*

	Finnish		North Saami
i > a:	*himo* 'craving, desire'	>	*hapmu* 'craving (for a particular food)'
	hinta 'price'	>	*haddi* id.
	hirsi(-puu) 'gallows'	>	*harca(-muorra)* id.
	hirveä- 'to dare to'	>	*arva-* id.
	ilman 'without'	>	*almmá* id.
	linna 'castle'	>	*ladni* id.
	pirtti 'cabin'	>	*barta* id.
	sileä 'smooth'	>	*šallat* id.
	silta 'bridge'	>	*šaldi* id.
	viha 'hatred' (< *viša*)	>	*vašši* id.
i > i	*himo* 'craving, desire'	>	*hipmu* id. (cf. *hapmu*)
	hirsi 'timber'	>	*hirsa* id. (cf. *harca-muorra*)
	ilma 'air; weather'	>	*ilbmi* 'weather; world'
	ilo 'joy'	>	*illu* id.
	kilju- 'to scream'	>	*gillju-* id.
	niska 'back of the neck'	>	*niski* id.
	sinku- 'to scold, brawl'	>	*šiggu-* id.
	tila 'space; condition'	>	*dilli* 'time; opportunity; condition'
	tiuku 'small bell'	>	*divga* id.
	vika 'fault, defect'	>	*vihki* id.
u > o	*hulpa ~ hulpio* 'selvage'	>	*holbi* id.
	hupa 'short-lasting'	>	*hohpi* id.
	kuva 'picture'	>	*govva* id.
	murhe 'sorrow' (< *mureš*)	>	*moraš* id.
	muta 'mud'	>	*mohti* id.
	rukka 'poor creature'	>	*-rohkki* 'late, deceased' (in compounds)
	rukoile- 'to pray'	>	*rohkadalla-* id.
	suitsu 'thick smoke'	>	*soica* 'thick driving snow; thick smoke'
	surma 'bane, death'	>	*sorbmi* id.
	tapaturma 'accident'	>	*dáhpedorbmi* id.

$u > u$	*huiski-* 'to whisk'	>	*hušku-* 'to beat'
	kulma 'eyebrow; corner'	>	*gulbmi* 'eyebrow'
	kuru 'gorge, ravine'	>	*gurra* id.
	luhta 'sedge; flood meadow'	>	*lukti* 'sedge'
	muista- 'to remember'	>	*muiti-* id.
	mulko- 'to glare'	>	*mulgu-* id.
	suitta- 'to afford'	>	*suiti-* id.
	surkea 'miserable'	>	*surgat* id.
	uksi 'door' (dialectal)	>	*uksa* id.
	urpu 'catkin'	>	*urbi* id.

Appendix B: Examples of the nativization rules of Finnish stem vowels **a**, **ä**, **e** *and* **i** *in Saami*

	Finnish		North Saami
a > i:	*arka* 'shy, timid'	>	*árgi* id.
	hinta 'price'	>	*haddi* id.
	liika 'surplus, too much'	>	*liigi* id.
	luotta- 'to trust in'	>	*luohtti-* id.
	matka 'trip, journey'	>	*mátki* id.
	muista- 'to remember'	>	*muiti-* id.
	niska 'back of the neck'	>	*niski* id.
	paina- 'to press'	>	*báidni-* 'to dye'
	rauha 'peace'	>	*ráfi* id.
	velka 'debt'	>	*vealgi* id.
ä > i:	*estä-* 'to prevent'	>	*easti-* id.
	kylä 'village'	>	*gilli* id.
	kylvä- 'to sow'	>	*gilvi-* id.
	köyhä 'poor'	>	*geaffi* id.
	metsä 'forest'	>	*meahcci* 'wilderness, wilds'
	pitä- 'to hold'	>	*bihti-* 'to have the strength to'
	päästä- 'to release'	>	*beasti-* 'to rescue'
	silmä 'eye'	>	*šalbmi* 'ax eye, needle eye'
	tyhmä 'stupid'	>	*diihmi* ∼ *duihmi* id.
	yrkä 'bridegroom' (obsolete)	>	*irgi* id.
e (∼ -i) > a	*arki (arke-)* 'workday'	>	*árga* id.
	juoni (juone-) 'intrigue, plot'	>	*juotna* id.
	hake- 'to fetch; to seek'	>	*háhka-* 'to get, find, procure'
	hoke- 'to harp'	>	*hoahka-* id.
	huoli (huole-) 'worry; care'	>	*fuolla* id.
	kanki (kanke-) 'handspike'	>	*gágga* id.
	meri (mere-) 'sea'	>	*mearra* id.
	olki (olke-) 'straw'	>	*oalga* id.
	pääse- 'to get somewhere'	>	*beassa-* id.
	Suomi (Suome-) 'Finland'	>	*Suopma* id.

i > a:	*huoli-* 'to accept'	>	*fuolla-* id.
	merkki 'sign, mark'	>	*mearka* id.
	pappi 'priest'	>	*báhppa* id.
	pirtti 'cabin'	>	*barta* id.
	sopi- 'to fit; to agree upon'	>	*soahpa-* id.
	soti- 'to wage war'	>	*soahta-* id.
	tauti 'illness'	>	*dávda* id.
	toimi- 'to function'	>	*doaibma-* id.
	viitsi- 'to bother to'	>	*višša-* id.

Appendix C: Examples of the nativization of the Finnish stem vowels **u** *and* **y** *in Saami*

	Finnish		North Saami
u / y > a:	*asu-* 'to dwell'	>	*ássa-* id.
	haju 'smell'	>	*hádja* id.
	häipy- 'to disappear'	>	*áiba-* 'to be missing'
	katu- 'to regret'	>	*gáhta-* id.
	kuru 'gorge, ravine'	>	*gurra* id.
	kypsy- 'to cook (intr.)'	>	*giksa-* id. (*-ks-* < *-ps-*)
	liikku- 'to move (intr.)'	>	*lihkka-* 'to wake up'
	loppu 'end'	>	*loahppa* id.
	luopu- 'to give up'	>	*luohpa-* id.
	paisu- 'to swell'	>	*báisa-* id.
	riehu- 'to rage'	>	*riedja-* 'to brawl, make a racket'
	suuttu- 'to get angry'	>	*suhtta-* id.
	synty- 'to be born'	>	*šadda-* 'to be born; to grow; to become'
	tiuku 'small bell'	>	*divga* id.
	tottu- 'to get used to'	>	*doahtta-* id.
	tyyty- 'to be satisfied with'	>	*duhta-* id.
	vaipu- 'to sink to the ground'	>	*váiba-* 'to get tired'
	veny- 'to stretch (intr.)'	>	*vietna-* 'to get strained (of muscles)'
	viipy- 'to be delayed'	>	*vihpa-* id.
	viru- 'to lie dead or ill'	>	*virra-* 'to lie dead (of slaughter animals)'
u / y > u:	*ampu-* 'to shoot'	>	*ábbu-* 'to boil over'
	hoppu 'hurry'	>	*hoahppu* id.
	häijy 'wicked, mean'	>	*headju* 'weak, bad'
	niitty 'meadow'	>	*niitu* id.
	parku- 'to cry, bawl'	>	*bárgu-* id.
	pyssy 'gun'	>	*bissu* id.
	pysy- 'to stay'	>	*bissu-* id.
	riepu 'rag; poor thing'	>	*riehpu* 'poor thing'
	rääky- 'to shriek, squall'	>	*reahku-* id.
	säily- 'to be kept, preserved'	>	*seailu-* id.
	sumu 'mist, fog'	>	*sopmu* id.

Appendix D: Examples of etymological nativization in the Saami loanwords in the Far-Northern dialects of Finnish

	North Saami		Finnish
a > i:	*caggi* 'prop'	>	*sinka* id.
	čahki 'lump of frozen snow'	>	*kika* id.
	čavil 'mountain ridge'	>	*kivalo* id.
	fasti 'ugly, disgusting'	>	*visto* id.
	navvi- 'to unhair (a skin)'	>	*nivo-* id.
	njalla 'storehouse on a pillar'	>	*nili* id.
	njavvi 'small rapids'	>	*niva* id.
	sabet 'ski'	>	*sivakka* id.
o > u:	*doggi* 'rennet bag'	>	*tunka* id.
	jorbmi 'whirlpool'	>	*jurmu* id.
	goldi- 'to fish with a drift-net'	>	*kulta-* id.
	goksi- 'to take s.o.'s share'	>	*kupso-* id.
	(*-ks- < *-ps-*)		
	gorži 'waterfall'	>	*kurkkio* id.
	gorut 'carcass; body'	>	*kurento* id.
	morša 'walrus'	>	*mursu* id.
	njolgi 'trot (of reindeer)'	>	*nulkka* id.
	noras 'marrow bone'	>	*nurus* id.
	rohtu 'thicket'	>	*ruto* id.

References

Aikio, Ante. In press. "The Study of Saami Substrate Toponyms in Finland". *The Borrowing of Place Names in the Finno-Ugric Languages (= Onomastica Uralica IV)*, ed. by Ritva Liisa Pitkänen & Janne Saarikivi. 21–75. Debrecsen, Hungary & Helsinki, Finland.

Alpher, Barry & David Nash. 1999. "Lexical replacement and cognate equilibrium in Australia". *Australian Journal of Linguistics* 19(1). 5–56.

Anttila, Raimo. 1989. *Historical and Comparative Linguistics, 2nd edition*. Amsterdam, The Netherlands: John Benjamins.

Bloomfield, Leonard. 1935. *Language*. London, UK: George Allen & Unwin Ltd.

Bynon, Theodora. 1977. *Historical Linguistics*. London & New York & Melbourne: Cambridge University Press.

Campbell, Lyle. 1998. *Historical linguistics: an Introduction*. Cambridge, MA: MIT Press.

Comrie, Bernard. 1993. "A review of S. A. Starostin, *Altaskaja problema i proiskhozhdenie japonskogo jazyka*". *Language* 69. 828–832.

Evans, Nicholas. 1998. "Iwaidja Mutation and its Origins". *Case, Typology and Grammar. In Honor of Barry J. Blake*, ed. by Anna Siewierska & Jae Jung Song. 115–149. Amsterdam, The Netherlands: John Benjamins.

Grace, George. 1996. "Regularity of Change in what?" *Regularity and Irregularity in Language Change*, ed. by Mark Durie & Malcolm Ross. 157–179. Oxford, UK: Oxford University Press.

Haugen, Einar. 1950. "The Analysis of Linguistic Borrowing". *Language* 26. 210–231.

Heath, J. G. 1984. "Language Contact and Language Change". *Annual Review of Anthropology* 13. 367–384.

Hock, Hans Heinrich. 1986. *Principles of Historical Linguistics*. Berlin, Germany: Mouton de Gruyter.

Itkonen, Erkki. 1961. *Suomalais-ugrilaisen kielen- ja historiantutkimuksen alalta*. Helsinki, Finland: Suomalaisen kirjallisuuden seura.

Itkonen, Erkki & Ulla-Maija Kulonen, eds. 1992–2000. *Suomen sanojen alkuperä. Etymologinen sanakirja*. Helsinki, Finland: Suomalaisen kirjallisuuden seura & Kotimaisten kielten tutkimuskeskus.

Kasik, Reet. 1991. "Hakkame rääkima! Viron kielen peruskurssi". Publications of The Department of Finnish and General Linguistics of The University of Turku, 37.

Koch, Harold. 1997. "Archaeology and linguistics. Aboriginal Australia in a global perspective". In McConvell & Evans 1997. 27–43.

Korhonen, Mikko. 1981. *Johdatus lapin kielen historiaan*. Helsinki, Finland: Suomalaisen kirjallisuuden seura.

Laanest, Arvo. 1982. *Einführung in die ostseefinnische Sprachen*. Hamburg, Germany: Helmut Buske Verlag.

Leer, Jeff. 1990. "Tlingit: a Portmanteau Language Family?" *Linguistic Change and Reconstruction Methodology*, ed. by Philip Baldi. 73–98. Berlin, Germany: Mouton de Gruyter.

Lehtiranta, Juhani. 1989. *Yhteisaamelainen sanasto. Mémoires de la Société Finno-Ougrienne 200*. Helsinki, Finland: Société Finno-Ougrienne.

McConvell, Patrick & Nicholas Evans, eds. 1997. *Comparative Linguistics and Australian Prehistory*. Oxford, UK: Oxford University Press.

McMahon, April. 1994. *Understanding Language Change*. Cambridge, UK: Cambridge University Press.

Nash, David. 1997. "Comparative flora terminology of the central Northern Territory area". In McConvell & Evans 1997. 187–206.

Paul, Hermann. 1909. *Prinzipien der Sprachgeschichte*. Halle a. S., Germany: Max Niemeyer.

Sammallahti, Pekka. 1988. "Historical phonology of the Uralic languages". *The Uralic Languages*, ed. by Denis Sinor. 478–554. E.J. Brill: Leiden, The Netherlands.

——. 1998. *The Saami Languages: an Introduction*. Kárášjohka, Norway: Davvi Girji.

——. 2002. *North Saami Resource Dictionary*. Oulu, Finland: Giellagas Institute.

Trask, Larry. 2000a. *The Dictionary of Historical and Comparative Linguistics*. Edinburgh, UK: Edinburgh University Press.

——. 2000b. "Some Issues in Relative Chronology". *Time Depth in Historical Linguistics*, vol. 1, ed. by Colin Renfrew, April McMahon & Larry Trask. 45–58. Cambridge, UK: The McDonald Institute for Archaeological Research.

Language Index

Author Index

Subject Index

analogy
  systemic analogy, 41
apocope, 18
  apocopation, 17

bilingual, 18, 19, 21, 24, 35
bilingualism, 18, 24
bisyllabic, *see* disyllabic

calque, 22
caritive, 22
chronology, 42
cognate, 17–19, 21, 22, 26, 29, 30,
    32, 38, 39, 41, 42
  quasi-cognates, 30
comparative linguistics, 18, 41, 43
comparative method, 19
continuative, 38, 39
correspondence mimicry, 18, 19, 22

delimiter, *see* event delimiter
dialect, 17, 19, 23, 24, 34, 39, 40,
    42, 46, 49
  dialect joke, 17
  dialectal, 28, 30, 33, 34, 39, 40
  phonological dialect, 20
diphthong, 18, 31–33, 35
  diphthongize, 25, 33

etymological nativization, 17–49
extinct, 23, 24, 39

folk etymology, 40
frequentative, 38, 39
  frequentative-continuative, 38, 39
  non-frequentative, 38

geminate, 18, 29, 39
gender, 22, 40

historical, 17–49

inflectional, 21
inheritance, 29, 42, 43
initial-dropping, 19

loan adaptation, 19, 22
loan nativization, 19
loanword, 17–49

monophthong
  monophthongization, 18

nominative, 36, 37
non-initial-dropping, 19
noun, 36–38

phonetic nearness, 29, 31, 33, 36,
    40
phonological simplification, 40
place name, *see* toponym
possession
  possessor, 22

shortening, 17, 18
sound change, 17, 20, 24, 26, 40,
    42
spirantization, 20
stop, 39
  aspirated stop, 31
substitution, 19–22, 39, 40
  consonant substitution, 19
  morpheme substitution, 22, 39
  phonetic substitution, 26
  sound substitution, 22, 26, 28,
      29, 31, 33, 34, 37–42
  system-based substitution, 31,
      33, 34, 38, 41
  vowel substitution, 17, 18, 20,
      21, 23–39