

1. Introduction to the Uralic languages, with special reference to Finnish and Hungarian

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Abstract

This chapter introduces the rest of the book by rapidly surveying the names of the Uralic languages and their speakers' numbers, as well as discussing the relative size and age of the family and its nine branches. It outlines the prehistory of these branches, and then goes on to sketch in outline the phonological and lexicogrammatical features that the editors think most interesting, problematic, suggestive, and instructive. The reader should come away from reading this chapter with an understanding of the four kinds of information contained in the rest of the book. These are (i) how and which speech sounds are used (vowels and vowel harmony, stress, consonants and consonant gradation); (ii) how nouns and verbs change their shapes in sentences (case, number, and predestination (in nouns); tense, mood, and object indexing (in verbs)); (iii) how words are put together to make clauses and complex sentences; and (iv) how new words are made (derivation and compounding). The chapter also introduces the more important theoretical conventions that the editors have found most useful in characterizing Uralic languages. To make the chapter accessible to as wide as possible a readership, most of the terminology used is cast in a Basic Linguistic Theory framework.

1.1. This volume

1.1.1. Purpose and outline

This chapter aims to introduce the rest of the book: it rapidly surveys the names of the Uralic languages and their speakers' numbers, and gives broad characterizations of the nine branches of the family; it then goes on to sketch in outline some of the phonological and lexicogrammatical features we think most interesting, problematic, suggestive, and instructive. We also introduce some of the theoretical conventions that we have found most useful in characterizing these languages, casting our terminology into a quasi-Dixonian framework (for which see Dixon 2010a, 2010b, 2012). In presenting our account of what we take to be characteristic or salient Uralic features, we have not striven to be homogeneous, and we have focussed far more on some topics than on others, leaving some topics virtually unexplored despite their importance and points of fascination (e.g. pronouns and other deictics, subordination and coordination). We have also tried to keep bibliographic references to a minimum.

In Chapter 2 Tapani Salminen outlines the linguistic units of which the family is currently constituted, with remarks about designations, degrees of endangerment, sociolinguistics, and revitalisation measures. The focus then turns to the past: in chapter 3 Mikhail Zhivlov presents an up-to-date, step-by-step outline of the prehistory of Uralic consonants and vowels, with

remarks on reconstructable morphology, while in chapter 4 Stefan Georg scrutinizes various attempts at establishing prehistoric connections between the Uralic family and its likely (and unlikely) long-range relatives. Chapter 5 presents a highly personal perspective on the history of the field by Péter Simoncsics, who frames it in terms of the wider European political and intellectual background (cf. Stipa 1990 and, for a concise review of the use of the comparative method in Uralic linguistics from an Indo-Europeanist perspective, Winkler 2017).

There then follows the bulk of the book. This consists of fifteen chapters, each of which sketches the core phonological and morphosyntactic features of a language or language group. Size limitations have meant that we have not been able to include a separate chapter for every language of the Saamic branch; instead we offer chapters on the westernmost and southernmost Saamic language, South Saami (Chapter 6, by Torbjörn Söder), spoken in central Norway and Sweden, and on Skolt Saami (Chapter 7, by Timothy Feist), representing the eastern group of the Saamic branch. (Detailed information on Saamic and all its varieties is now accessible in chapters six through thirteen, pages 103–239, in Bakró-Nagy et al. 2022 well as in Sammallahti 1998.)

The highly divergent yet close cognates represented by North (Standard) Estonian and South Estonian (Võro) are presented in chapters 8 (Reili Argus and Helle Metslang) and 9 (Helen Plado, Liina Lindström, and Sulev Iva), respectively. Riho Grünthal offers an overview of the Finnic branch in chapter 10, and Jack Rueter details the elaborate phonology and superabundant morphology and syntax of Moksha (Mordvin) in chapter 11. Mari is the subject of chapter 12 (by Jeremy Bradley and Jorma Luutonen), who focus on the eastern (‘Meadow’) language, but also with reference to the western (‘Hill’) standard. In chapters 13 and 14 Pirkko Suihkonen and Rogier Blokland present the main varieties of the Permic branch: Udmurt and Zyrian Komi. Susanna Virtanen and Csilla Horváth look at North Mansi in chapter 15, while Márta Csepregi describes an eastern Khanty variety in chapter 16. The last four chapters devoted to language descriptions focus on Samoyedic: from North to South these are Nganasan (chapter 17, by Beáta Wagner-Nagy), the closely related Tundra and Forest Enets languages (chapter 18, by Olesya Khanina and Andrey Shluinsky), Tundra Nenets (with some reference to its closest relative, Forest Nenets, in chapter 19, by Nikolett Mus), and finally Selkup, whose southern variety (Ket’) receives treatment in chapter 20 (by Gerson Klumpp and Josefina Budzisch).

The last two chapters of our volume are devoted to two more wide-ranging linguistic topics, namely relative clauses (Chapter 21, by Ksenia Shagal) and definiteness (Chapter 22, by Merlijn de Smit and Gwen Eva Janda). The volume is rounded off with an index in which both individual and nested items may be found.

In comparison with the first edition—Abondolo (1998), hereafter: TUL1—this second edition is an entirely new book. We do not feel that the first edition is largely superseded, however. Much of the expertise offered by its contributors remains uniquely informative today, and it is hoped that readers will consult the two volumes profitably in tandem. Our suggestion here is that readers will benefit by consulting, for example, Pekka Sammallahti’s Saamic chapter in TUL1 (43–95) together with chapters 6 and 7 in this volume on South and Skolt Saamic; Gábor Zaicz’s chapter in TUL1 (184–218) with chapter 11 in this volume on Moksha; and similar parallels, extensions, and replacements, including the chapters in TUL1 on the branches Finnic, Permic, Ob-Ugric, and Samoyedic.

Readers will of course also wish to consult the much larger *Oxford Guide to the Uralic Languages* (Bakró-Nagy et al. 2022, hereafter: BLS) not only for its far more extensive

coverage but also for its specialist chapters on broader phonological and grammatical topics. Many chapters in Sinor (1988) and Hajdú (1981), and, indeed, Collinder (1957) also remain uniquely useful.

1.1.2. Geography, demography, and endangerment

In terms of **numbers of speakers**, Uralic languages vary considerably, ranging from Hungarian, with over twelve million speakers, to Forest and Tundra Enets, which taken together number no more than fifty speakers, all of whom are ‘are over 50 years old and bilingual in Russian, or trilingual in Russian and Tundra Nenets’ (see chapter 2.40, and 18.1). Several other Uralic languages have speaker numbers which are vanishingly small, e.g. Livonian, strictly speaking now extinct in the sense the last first-language speaker has died, is now spoken only by a few dozen second-language speakers (2.12). Yazva Komi (‘East Permic’, cf. Genetz 1897), whose phonology and lexicon diverge strongly from the rest of Komi (and Permyak), is also highly at risk, with perhaps ~200 speakers (Salminen 2007). Providing accurate figures for numbers of speakers is challenging because of different degrees of fluency and the ways in which surveys are conducted (see Chapter 2). It should also be borne in mind that a phrase such as ‘speaker of language L’ in most Uralic contexts almost invariably means ‘speaker of language L and at least one other language’; in the Uralic zone bi- and multilingualism is and was the norm practically everywhere, the only real exception being Hungary since the Second World War (see Laakso 2014).

The Uralic family at present counts no more than about **forty to fifty languages**, nearly all of which are spoken by fewer than a few thousand people. In terms of speaker numbers, it is therefore a fairly typical family for Eurasia, with a median no higher than 600; Hammarström (2016) calculated a median of 735 for Eurasia as a whole. In terms of number of daughter languages however Uralic is a slightly larger than average family: while there are a few families with daughter languages numbering in the hundreds (like Atlantic-Congo, with some 1400; Indo-European, with over 580; Sino-Tibetan, with over 500; and Austronesian, with over 1200 daughter languages) the overwhelming majority of language families in the world have far fewer. Of the over 400 language families listed at glottolog.org (glottolog.org/glottolog/family) only 22 have more than 50 daughters, and more than half have only two or are isolates (languages which are the sole surviving member of their family).

Where Uralic excels on a global scale is in terms of **geographical expansion**. The distances over which Uralic idioms have spread are among the greatest world-wide: South Saamic (Dalarna county in Sweden) is spoken some 2000 miles west of Nganasan (Dudinka, Taimyr). For overland spread this is of a magnitude comparable with Algonquian or even Algic.

Determining the difference between a dialect and a language is based on the criteria of mutual intelligibility, standardisation, prestige, the number or combination of unique features (linguistic distance), or the speakers’ own perception (e.g. Chambers and Trudgill 1998). This can lead to a tendency to regard languages that should be separate as one, which can have consequences on division of resources, status, and the speakers’ self-worth. Such cases are Karelian, Livvi and Lude, which have been called ‘Karelian’ (chapter 2), and Meänkieli and Kven. The latter two are still mostly treated as dialects of Finnish in many contexts although they have diverged from Standard Finnish considerably (e.g. Paunonen 2018) challenging mutual intelligibility, they have official minority language status in Sweden (Meänkieli) and Norway (Kven), they have been codified and have written traditions (e.g. Söderholm 2017; Pohjanen 2022), and the speakers view them as languages and not dialects.

But besides number of languages and numbers of speakers, in order to get a sense of the family in a global context one more kind of quantity needs to be considered, namely the size of the reliably reconstructable corpus. Janhunen gauged the age of the Uralic family to be relatively high, basing his calculation on a consideration of the twin facts that while the geographical extent of Uralic is enormous, the size of its reliably reconstructed comparative corpus is small (2009, 59). In this connection note the inverse, from Hammarström (2016, 23) ‘if languages share too little vocabulary we would not accept they are related while if languages share a lot of vocabulary, we do not think the relation is old.’

Unfortunately, many languages in this vast and old language family are endangered. Reasons leading to the **endangerment** of Uralic languages are the same as for languages elsewhere in the world (see e.g. Crystal 2000, 89–119). In addition to environmental factors, disease, and armed conflict that led to the loss of speakers in the colonial past, languages are endangered due to assimilation to the dominant culture and population, whether it be Russian, Swedish, Norwegian, Finnish, Latvian, Romanian, Hungarian, or Estonian. Speakers of Uralic languages switch to the majority language for better job opportunities. They may move to an urban centre which leads to marriage with a speaker of the majority language and the child ends up speaking mostly the majority language. The state often does not provide the minority language enough support in education and administration, and children may even be punished for speaking the language in the school system (see e.g. Aro 2018 for Meänkieli) or sent to boarding schools away from their parents (see Grenoble and Whaley 2005, 70–78 for a general description of the situation in Siberia). The majority language may seem more appealing and the speakers themselves may hold the minority language in low regard and so not bother to use it or to ensure it is passed on to the next generation.

Salminen (chapter 2) provides an overview of the degrees of endangerment ranging from safe (e.g. Hungarian) to extinct (e.g. Akkala Saami). The degrees in between are ‘definitely endangered (e.g. North Saami, Udmurt), ‘severely endangered’ (e.g. South Saami, Livvi), and ‘critically endangered’ (e.g. Tundra and Forest Enets, Pite Saami) (for an overview of endangerment classification systems and a global perspective see Bradley and Bradley 2019, 14–37). The key to maintaining or reviving a language is the successful implementation of **reclamation** and **revitalisation** measures: these can vary from mother-tongue tuition in schools and immersive methods like language nests to making the language more appealing to the young generation through hip-hop and rap (e.g. Ridanpää and Pasanen 2009) and raising the language’s status by establishing a written standard and producing textbooks and other resources. Giving the language official status through The European Charter for Regional or Minority Languages (Council of Europe 1992), supportive state legislation, or discussing language and identity through a Truth and Reconciliation Commission process (e.g. SOU 2022) are equally important. One should set realistic goals when reviving or reclaiming a language, of which Livonian is a prime example. It had nearly become extinct and now has several second-language speakers who may not be fluent but know about the language and use it symbolically and to identify as Livonians, if not for practical purposes (see Ernštreits 2016).

1.1.3. Branches of the Uralic language family: Typological overview and prehistory

We reckon with nine branches of Uralic: Saamic, Finnic, Mordvinian, Maric, Permic, Hungarian, Mansic, Khantic, and Samoyedic. The prehistory of each of these branches has been strongly affected by the different kinds of environments onto which the languages expanded: the zone across which Uralic spread was extremely large, but the terrain was not

particularly mountainous, and an initial dispersal *ca* 4000–4500 years ago, starting east of the Urals and ‘initially out of contact with Indo-European’ seems the most likely (see Grünthal et al. 2022 for a recent and detailed account of when, where, and how this may have taken place; also Nichols 2021). The spread occurred partly as a result of the migration of Uralic speakers, but mainly through language-shift, by the earlier inhabitants, to Uralic idioms: the origins of much vocabulary, particularly in Saamic and in north Samoyedic but also to a degree in Permic (Csúcs 2010, 281), will remain obscure because it stems from bilingualism with pre-Uralic languages spoken in the areas into which Uralic moved.

Dating the beginning of the Uralic dispersal to *ca* four-and-a-half thousand years ago is not the same as saying that the protolanguage (Proto-Uralic, PU) is four-and-a-half thousand years old. Before the population explosion of the kind envisaged by Grünthal et al. (2022), speakers of a common yet non-homogeneous Uralic language can only have lived in small hunter-gatherer groups typical of Neolithic technology, separate yet in some partial or sporadic communication with one another east of the Urals, for at least one or two millennia. The contrast between a relatively long-lasting, stable, uneventful stretch of time and a dramatic cultural, demographic, and climatological event should not surprise us, since each is part of a cycle in which the one (equilibrium) is the complement to the other (punctuation); the two have been fused in an ‘adaptive-cycle’ model (Hudson 2019, with literature).

We may group the reconstructable nine branches of earliest Uralic into three types, on the basis of the manner of their expansion once the initial breakups had occurred (Table 1.1). One kind of expansion, typical of four of the branches (Saamic, Finnic, Permic, Samoyedic), characterizes languages which expanded northwards, probably into less populous areas. A second kind of group seems to have involved relatively little movement of speakers or language: the Mordvin and Maric branches seem to have remained more or less in the locations they first adopted (Blažek 2013). Finally, a third kind of grouping, namely that of the Hungarian, Mansi and Khanty branches (*Ugric*, see below), constitutes a special set of problems and questions.

Table 1.1. Schematic map of the nine attested Uralic branches. Extinct sub-branches in (brackets); for difficulties with Hungarian, Mansi and Khanty (numbers 6, 7 and 8) see text.

		1	2	3	**	4	5	6	7	8	9
lat- i- tude	73°	Saa					Perm		Ms	Kh	Nganasan
	63°		Fi			Mari		Hung*			
	53°			Md							Selkup
											(Kam)
											(Mat)

*Hungarian speakers to centre on 47° N, 20° E by C10)

** †Murom, see text

†Merja, etc.

We look first at the three groups showing language spread northward. At the far eastern end of the family, Samoyedic expanded northward from southwestern Siberia (beginning at the latest *ca* two or three centuries BCE, Blažek 2016); at the opposite end, Saamic and Finnic also expanded northward. And toward the centre of the family, Permic also expanded northward, probably relatively late (Janhunen 2020) and from a relatively southerly area, to judge from the high number of Iranian loans copied directly into Pre-Permic, for which see now Holopainen (2019). In all three cases, greater internal linguistic diversity among the residual subgroups to the south reflects the older area of settlement, while the languages spoken in the less populous north show less internal differentiation. Specifically: southern Finnic is far more internally diverse than northern (Viitso 1998); in the Permic branch, Komi dialects (with the exception of Yazva) differ among themselves less than do Udmurt dialects, and southern Udmurt dialects show far greater variation than more northerly ones (Csúcs 1990, 12–19). Finally, a perusal of Janhunen (1977) will show that the more southerly attested Samoyedic languages, from Mator through to Selkup, show a greater range of phonological and lexical diversity than the more northerly Nenets, Enets, and Nganasan languages (a glimpse at paradigmatic diversity in this branch is offered by Wagner-Nagy and Szeverényi 2022). The origins of the vocabulary of more southerly Samoyedic languages are relatively easily traced through the reconstructible histories of their linguistic neighbours, but as mentioned above, the more northerly Samoyedic languages (especially Nganasan) have a great deal of unetymologizable material, due no doubt to borrowing from autochthonous languages which were otherwise absorbed without trace.

1.1.3.1 Saamic and Finnic

At the extreme western end of the family, what are clearly two branches today—**Saamic** and **Finnic**—may be seen as crystallized, relatively recent nodes emerging from an earlier Fenno-Saamic dialect continuum, with speakers of what came to be Saamic and Finnic varieties expanding slowly northwards no earlier than 3000 years BP, and with Finno-Karelian varieties coming to inhabit the greater part of their present-day areas as recently as the seventh to sixteenth centuries. It now seems clear that Proto-**Saamic** evolved in the early Iron Age (*ca* 0–500 CE) in what is now southern Finland and areas to its east, under Germanic, pre-Finnic, and Baltic influence from the south, as well as under the influence of unknown substrate languages from the north as was the case with Nganasan (Aikio 2006b, 45).

Thanks to the regularity of sound change, we know that Saamic words with certain vowel patterns cannot have been in the language before the Great Saami Vowel Shift, since that rotation eliminated them (lengthening of low vowels, shortening of long high vowels, diphthongization of mid vowels; see Chapter 3, Table 3.6). Aikio (2012, 84) has scoured the Saamic lexicon for such words, and lists several dozens of them, grouping them according to the new, i.e. borrowed, vowel profiles which they imply; vocabulary pertinent to northern topography, flora/fauna, and reindeer predominates, e.g. *giezzi* ‘short river between two lakes’, *skier’ri* ‘dwarf-birch’, *jiegis* ‘bearded seal’, and *giehppi* ‘hollow under a reindeer’s lower jaw’ from proto-Saamic *ie_ē, or *ráš’sa* ‘high and barren mountain’, *gálva* ‘dead birch’, *njállá* ‘arctic fox’, and *dábba* ‘uppermost marrow-bone in reindeer’s foreleg’ from proto-Saamic *ā_ē.

To give an impression of phonological and grammatical variety within the Saamic branch, nine cognates are presented in Table 1.2, and Table 1.3 shows the distribution of various uses of the dual number.

Table 1.2. Lexical material in Saamic adapted from Lehtiranta (1989): listed here are nine sample nominal roots, with their Lehtiranta numbers; the North Saami is converted to modern

orthography. Note that the Saamic words for ‘tree’ and ‘stone’ lack good etymologies outside the Saamic branch; ‘water’ looks affective (*čäčä) and is probably cognate with Surgut Khanty *sáč* (VachVasjuga *sěč*) ‘flood in late summer’.

	tree 692	liver 688	eye 110	water 115	stone 380	fire 126 6	bow 290	arrow 789	needle 36
South	muore	muöksie	tjälmie	tjaadsie	giergie	dålle	juokse	njuole	aajmie
Ume	muarra	müekse e	tjal'bme e	tjahtse e	geäd'ge e	tålla	juak'sa	njuolla	åibmee
Pite	muorra	xxx	tjal'pmie	tjahtsie	kied'kie	tålla	juok'sa	njuolla	aaj'pmie
Lule	muorra	xxx	tjal'mē	tjāhtjē	kier'kē	tålla	juoksa	njuolla	ai'mē
North	muorra	xxx	čalbmi	čáhci	geađgi	dolla	xxx	njuolla	áibmi
Inari	muora	xxx	čalme	čääci	keđgi	tulla	juoksa	njuola	äjmi
Skolt	muõrr	xxx	čâ'Imm	čää'cc	keä'đgg	toll	johss	njuöll	xxx
Kildin	mūrr	xxx	čā'Im	čā'33	kie'đg	töll	jū'xs	nūll	xxx

Table 1.3. Deployment of the number category **dual** in Saamic (adapted from Kejonen 2017, 23–24). Key to Saamic language abbreviations: S(outh), Um(e), Pi(te), Lu(le), N(orth), In(ari) = Aanar, Sk(olt), Kil(din), Ter, Akk(ala).

	S	Um	Pi	Lu	N	In	Sk	Kil/Ter/Akk
pronouns	+	+	+	+	+	+	+	-
finite Vs	+	+	+	+	+	+	-	-
person suffixes	-	+	+	+	+	-	-	-

Finnic (see Chapter 10) is a branch with eleven members: one, Livonian, could be regarded as extinct but is being revived, and two (Votic and Ingrian) are critically endangered; two are newly emerging varieties (Meänkieli in Sweden and Kven in Norway, see section 1.1.2). Two state languages belong to this branch: Finnish and (north) Estonian, which both now enjoy official status in their respective countries. South Estonian (Võro and associated varieties, see chapter 9), which lacks official status, is genealogically further removed from north Estonian than north Estonian is from Finnish (Viitso 1985, 1998, 101; Kallio 2014). Veps has three quite distinct traditional dialects spoken in three different administrative units but with a total of some two to three thousand speakers at best (chapter 2.21; Grünthal 2022). Votic is now nearly extinct, but documentation (mainly from the twentieth century) shows it to have had a highly

distinctive amalgam of phonological and morphological features including gradation before secondarily long syllables (e.g. *lahsi/lahzõõ* NOM.SG/GEN.SG of ‘child’, Table 10.7) and a comitative suffix otherwise known only from Finnish, Karelian, and Mordvin (Laanest 1982, 172–173).

One can gain insight into the finely-tuned phonological discrepancies among five Finnic idioms from Viitso (1978), where thirty-two distinct vowel isoglosses are identified for Finnish, East Livonian, (north) Estonian, and Votic.

1.1.3.2. Mordvin and Mari

The two language branches **Mordvin** (number 3 in Table 1.1.) and **Mari** (number 4 in Table 1.1.) are of a different kind. These languages seem not to have expanded northward and they are not particularly close to one another either genealogically or typologically.

First, the two **Mordvin** languages: Erzya and Moksha. These are closely related to one another, and both show considerable dialectal variation; there has also been a great deal of dialect mixture. What makes both Mordvinian languages stand out from other western ones is their highly elaborated morphology in both verb and noun inflection. The Erzya or Moksha verb indexes object person and number to a degree unparalleled in the rest of the family, and nouns are inflected not only for number, case, and person but also for ‘definiteness’ (chapters 11 and 22). Most of this morphology looks new: the definite declensions of Moksha and Erzya have clearly developed separately.

In published materials Mordvin dialect diversity manifests itself most clearly in phonology and morphology. As an example of phonological variation we may consider Erzya dialects with *i > ä, as in Shugurovskij Erzya *l’äm* ‘name’ (Tsygankin 1961, 298) and Moksha dialects with *ä > e as in Srednevadskij Moksha *l’em* ‘broth’ (Devaev 1963, 265):

Table 1.4. selected vowel correspondences in Erzya and Moksha dialects. M = Moksha, E = Erzya, PU = Proto-Uralic, M std. = standard Moksha, M SV. = Srednevadskij dialect of Moksha, E std. = standard Erzya, E Shug. = Shugurovskij dialect of Erzya.

	PU	M std.	M SV.	E std.	E Shug.
‘name’	*nimi	l’em	l’im	l’em	l’äm
‘broth (M), fat (E)’	*lämi	l’äm	l’em	l’em	l’em

It is thought that the *i* in Srednevadskij Moksha ‘name’ is the result of secondary raising after *i > *e; if this is so, we presumably have:

PU *nimi	> l’em >	Erzya	dialect	<i>l’äm</i>	
	> l’em >	Moksha	dialect	<i>l’im</i>	
PU *lämi	>	Moksha	standard	<i>l’äm</i>	
	> *lāmi	>	l’em ^o	> Erzya	<i>l’em</i>

i.e. in ‘type II’ dialects (to use Jackson’s term, 2020, 22) Moksha dialect *l’em ‘name’ rose, pushed by rising *lāmi ‘soup’).

For variety in Mordvin morphology we might cite the singular possessive suffixation of *jalga* ‘friend’ in Erzya and Moksha (Table 1.5):

Table 1.5. Suffixation of *jalga* ‘friend’ in Erzya and Moksha

	1SG	2SG	3SG

Erzya	<i>jalga-m</i>	<i>jalga-t</i>	<i>jalga-zo</i>
Moksha	<i>jalga-žə</i>	<i>jalga-ćə</i>	<i>jalga-c</i>

In these forms Erzya continues the inherited singular person suffixes *-mi *-ti *-(n)sA. Moksha, in contrast, has innovated forms using demonstratives: we have anaphoric *śə in locuphoric (= speech-act-participant) persons, but distal *t (cf. *to|na* ‘that’) in non-locuphoric (third) person, specifically: 1SG *-m-śə > -žə and 2SG *-t-śə > -ćə with the suffix order PERSON + DEMONSTRATIVE, but 3SG *-t-sə > -c, with the reverse order. Oblique case forms show further complexities (see Bartens 1999, 100–105; see also chapter 11.4 in this volume and Keresztes 2013, which provides more specifics on Moksha possessive and definite forms).

Mordvin objective conjugation forms show quite a bit of variation both between and within Erzya and Moksha; Keresztes (1999) provides a succinct overview.

There was a Saamic-Fennic dialect continuum, but we can also assume common innovations or drift between Finnic and Mordvin. The history of both the phonology and the morphology of the Mordvin languages is closer to branches in the West than in the East (see Grünthal 2007 and 2019 for the morphosyntax; see chapter 3 for the background to the phonology).

Outside of the nominative of the absolute declension a number opposition has developed in Mordvin only in the subparadigms encoding definiteness, and (partially and depending on dialect) in subparadigms encoding person. For example Erzya opposes possessive *kudo-m* house-1SG ‘my house’: *kudo-n* house-PL.1SG ‘my houses’, definite *kudo-sʹ* house-DEF.NOM ‘the house’: *kudo-tʹnie* house-DEF.PL.NOM ‘the houses’, but absolute *kudo-so* house-INE is indifferently ‘in a house/in houses’.

1.1.3.3. Maric

Maric was long thought to belong to the same sub-branch of the Uralic genealogical tree as Mordvin, but there is more to separate than to unite these two groupings on nearly all levels of linguistic analysis, and the search for a reconstructable node has proven sterile. While Mordvin patterns with the branches to the west, Maric is flooded with influences from the east and south: the break in typological and lexical continuity between the two groups is obviously to be associated with the linguistic asteroid belt occasioned by the loss of the idioms known as Merja, Murom, and Meščera (Rahkonen 2009), and may be attributed to early language loss, shift, or both. It must also be connected with joint pressures from Volga Bulgarian (and, later, Chuvash) as well as from various forms of Tatar and of course Russian.

What Maric does belong to is the now commonly recognized Volga-Kama linguistic area (on which see Berezki 1984; Helimski 2003, 159–60; Bradley 2016). This is a convergence area of which (besides Mari) Chuvash and Tatar are also central members, and to which Udmurt, Komi-Permyak, and Bashkir are more peripheral.

That Maric in the not-too-distant past exhibited considerable phonological variation is evident in the painstaking reconstruction of the vocalism undertaken by Aikio (2014). Differences in vowel harmony rules and in stress assignment and mobility not only between west (Hill) and east (Meadow) Mari but also within these language groupings point to a complexity that was already substantially eroded by the end of the Second World War. It is noteworthy, for example, that earlier spirants (velar [ɣ], interdental [ð], bilabial [β]) have now been largely replaced with Cyrillic-inspired spelling pronunciations (chapter 12.3).

For the student of syntax, Mari offers the richest supply of Uralic data illustrating the behaviour of converbs. In this language (as amply documented in Bradley 2016) converbs may function

not only as free adverbials (*malen kajəf* sleep.CVB go.PST1.3SG ‘s/he spent the night and left’) and as the subordinated predicates of complement clauses (*malen kerteʃ* sleep.CVB can.PRS.3SG ‘s/he can sleep’) but also as constituents of verb pairings that calibrate various kinds of aspect, with or without indexing of path and other variables such as autobenefactiveness. Note the delimitatives (here and throughout the volume we write verb stems with final hyphen) *malen ertarə-* sleep.CVB carry.on ‘to sleep through’, *malen nal-* sleep.CVB take ‘to have a nap’, as well as pairings such as *malen koltə-* sleep.CVB let.go ‘to fall asleep’, *malen tem-* sleep.CVB fill.up ‘to get enough sleep’, *malen kod-* sleep.CVB stay ‘to not wake up’, *malen kodə-* sleep.CVB leave ‘to oversleep and so miss’.

The distinction between adverbial, support-clause function and these more lexicalized pairings is not always easy to draw; in a verb sequence such as *malen kəhel-* sleep.CVB rise we might be tempted to see the converb as simply a temporally subordinated predicate, but the construction is extremely frequent in narratives, where it describes a typical act of getting up in the morning, after a night’s sleep.

Despite the pioneering of Räsänen (1920) and (1922) the lexicon of Maric has still not been given the scrutiny it deserves, partly because it is only recently that the necessary preliminary work of discerning and sorting the various kinds of Iranian and Turkic has begun (Culver 2020, 61). Saarinen (2020, 339) reports that the *Tscheremissisches Wörterbuch* (= Moisio and Saarinen 2008) gives no origin for 1,575 (*ca* one third) of its entries. Although a sizeable minority of this vocabulary could be of affective/descriptive origin, there are probably also several layers of loans as well as inherited items. As an example of the latter, cf. Aikio (2014, 83–84), where proto-Uralic *mp > Maric -w- is accounted for, linking east Mari *lewe* ‘warm’ with e.g. Finnish *lämmin/lämpime-* ‘warm’, Nganasan *d’əŋh’a* ‘clothes’ and Tundra Nenets *yemp|əʃ-* ‘dress ITR/TR’. Collating of the *Tscheremissisches Wörterbuch* with Beke (1997) will be a welcome next step.

1.1.3.4 Permic

Here again we have a south-to-north spread, like Fenno-Saamic in the west and Samoyedic in the east. And again there is greater diversity in the southern varieties, with contacts that are more diverse (and doubtless clearer to us because the contact languages are better known than those of the north). Most of the Udmurt, Permyak, and Komi varieties are typologically quite similar, and share cognate word stems and suffixes numbering well over 1500 (Saarikivi 2022, 31, following Csúcs 2005). This typological self-similarity includes [1] nearly identical vowel and consonant inventories (albeit with divergent stress patterns, and with complex and multiple sets of correspondences, see 3.5.5 for details); [2] identical or similar phonological processes in identical or parallel domains (Geisler 2005); and [3] broadly similar syntax (but see Bartens 2000, 228–264 and 329–348 for several smaller divergences).

Permic seems to lie at the centre of a larger, raggedy kind of Sprachbund that is larger than the Volga-Kama one mentioned above in connection with Mari. This larger and much looser—and older—contact area includes not only Maric and Permic, but also (to lesser degrees) Mordvin and Ugric. Shared features which suggest shared innovations, whether due to a shared node or to parallel drift, include an increase in the monosyllabicity of roots (but without much of the preservation of second-syllable features, as in Estonian or eastern Saamic), and there has been a notable amount of lexical and syntactic borrowing (see Helimski 2003; Austerlitz 1985 explores various issues connected with the difficulty of reconstructing Permic in precise detail, and reckons with back-eddying migration and dialect borrowing).

The main difficulty with Permic is not its validity as a node; it is clear that the languages are closely related. Rather, the difficulty is that in order to account for the vowels of Udmurt/Komi cognates recourse must be made to both large vowel protosystems and highly complex series of sound changes, the conditions for many of which remain unclear. Nevertheless, progress is being made, and in particular, questions about the relative chronology of various changes to the shapes of Permic stems will need to be examined anew now that the field is less committed to tying Permic firmly to a ‘Finno-Permic’ node (see 3.1 in this volume). For example, although it is a commonplace to think of Permic nouns as having lost their second syllable vowel, the truth is much more complicated than that. Csúcs (2003) is probably correct in most details in ascribing the additional *j* of a large set of Komi noun roots to a hiatusilger (= a glide to preserve sequences of vowels): in inflected forms of nouns which had lost their second-syllable vowel in the nominative, old CVCV-C sequences were reinterpreted as CVC-VC, but in stems which had not yet undergone this apocope, the vowel-initial shape of these suffixes triggered an epenthetic glide, CVCV-VC > CVCVj-VC. Thus were born, by a process of exaptation, two sets of vocabulary, one which had undergone full apocope early (and thus lack the *j*-alternation) such as ‘mouse’, with Komi NOM *šir*, ILL *šir-ə*, and the other, whose second-syllable vowel survived long enough for a hiatusilger to be required in what was felt to be a sequence of stem-final and suffix-initial vowels, as in ‘nest’, with NOM *poz* (< *pozə), ILL *pozj-ə* < *pozajə < *pozə-ə(k). Another way to say this is to say that the second-syllable vowel of *pesä ‘nest’ was not truly ‘lost’ until it was elided when sandwiched: *CVCVCV > CVCCV. All this was complicated by the fact that some Udmurt cognates seem to have added a derivational suffix; cf. words like *lumi(-) ‘(to) snow’, *wanča ‘root’, *tulka ‘feather’ (3.7).

In the PPerm lexicon new vocabulary arose, much of it borrowed from Iranian or Volga Bolgar languages; semantically this layer is relevant to animal husbandry, agriculture, textiles, house-building, and rudimentary metallurgy, all involving technologies well beyond those known in PU times, e.g. PPerm words for ‘horse’, ‘foal’, ‘mane’, ‘reins’; ‘seed’, ‘awn’, ‘rye’, ‘barley’; ‘wool’, ‘spinning wheel’, ‘shuttle’; ‘wall’, ‘wedge’; and ‘iron’, ‘tin/lead’, ‘coals’, ‘whetstone’; but new societal terms also make their first appearance at this time, e.g. new words for ‘widow’, ‘stepmother’, ‘brother’ and ‘character’ (Csúcs 2005, 315–317). A fairly clear break may be discerned between Udmurt, with hundreds of Volga Bolgar (and later Chuvash) loans, and Komi, whose speakers had already begun to move northwards in the last millennium, with only a few dozen (Csúcs 2005, 311–312). The Chuvash loanwords found only in Permyak and Udmurt (but not Komi) belong to a later layer adopted after the tenth century. Inherited vocabulary is not evenly distributed: Csúcs (2005, 309) found 225 words of pre-Permic origin in Komi that lack Udmurt analogues, but in Udmurt only 91 such words have no pendants in Komi; it would be edifying to sift these two sets of vocabulary qualitatively, in terms of meaning, form, and cognate distribution outside Permic. As for Permic lexis without etymology, it is quite large: Csúcs (2005, 313) estimated roughly 500 Permic words to be of unknown origin.

1.1.3.5. Hungarian, Mansi and Khanty: Ugric

We come now to the most difficult branch (or, as we shall see: branches). The languages involved—Hungarian, Mansi, and Khanty—have traditionally been viewed as forming a node *Ugric*, with two lower nodes, Hungarian and Ob-Ugric. However more recently the higher node has been questioned, each of these three language groups being assigned to its own branch. (For innovations more or less clearly shared by a putative Ugric branch see 3.1 and 3.5.6 in this volume, and Honti 1998, 353–355.)

No Uralic language resembles **Hungarian** particularly closely. The causes for this are history, geography, and demography, i.e. time, space, and people; cf. Häkkinen's *false divergence* (2012). As its speakers migrated westwards Hungarian not only underwent a long period separate from other forms of Uralic; it was also in long and intimate contact with a large and idiosyncratic selection of Iranian, Turkic, Slavonic and other languages otherwise not in contact with the Uralic language area. In the Hungarian lexicon many new words, both borrowed and internally innovated, have replaced older Uralic stock; for example, the original words for 'neck', 'moth', 'rope', 'fish scales', 'to row', 'to chew', and 'to spit', all well represented in daughter languages elsewhere in Uralic (including Mansi and Khanty) have left no trace in Hungarian. Grammatically Hungarian has taken on a Standard Average European profile in many ways (Haspelmath 2001), and its phonology is in many ways Danubian (Balázs 1983). The Turkic components of the Hungarian lexicon are both substantial and also highly various (but their number has also been exaggerated: contrast Róna-Tas and Berta 2011 with Honti 2017).

On the other hand no Uralic language resembles Hungarian more closely than Mansi. This fact is mildly surprising, because as mentioned above Mansi is usually assigned, with Khanty, to the Ob-Ugric branch and the Ob-Ugric branch, in turn, is traditionally described as consisting simply of Mansi and Khanty. But some of the similarities between Mansi and Khanty—such as their parallel use of separately innovated transitive verbs of possession (Surgut Khanty *täj-* 16.10, Sosva Mansi *o:ńś-* 15.16)—look more like the results of convergence than shared inheritance. What is more, some of the features cited by Honti (1998, 352–353) as shared innovations, and thus as putatively indicative of a common Ob-Ugric node, are even more likely to have been induced by contact. Examples are the parallel use, but different morphological makeup of objective conjugation forms, and the recruitment of heterogenous but phonologically similar suffixes to flag the agent in passive constructions (Mansi lative, Khanty locative, the former from a postposition, the latter from the proto-Uralic locative *-nA).

If what we take to be an Ob-Ugric node is the result of convergence, this convergence must have begun rather early, although it may well have continued even after the beginning of the Khanty dispersion eastward along the Ob' and its tributaries (and it is obvious that north Mansi and North Khanty varieties have undergone considerable, relatively recent, convergence, cf. the history of the vocalisms outlined in Honti 1984, 19–23 and in Abondolo 1996, 7–16).

On the other hand it has long been recognized that Mansi presents with a number of features which seem to align it more closely with Hungarian than with Khanty. The evidence is not compelling, only suggestive:

[1] there is *r rather than *l in the word for 'three' (Hungarian *három*, Sosva Mansi *xūrəm* as opposed to Finnish *kolme* and Surgut Khanty *kōləm*); but this could be a sporadic change, or to do with the following nasal, or reflect dissimilation from the subsequent numeral *neljä 'four';

[2] there are parallels in the makeup of the Hungarian and Mansi 1SG and 2SG pronouns: in the nominative we have Hungarian *én* and proto-Mansi *ām, both with loss of initial *m (compare Finnish *minä* and Surgut Khanty *mā*); this loss was perhaps through *fausse coupe* of syntagms in which a verb form indexed for 1SG subject (*-m) preceded the free pronoun, and this *-m m-sequence underwent degemination. The accusative forms in both Mansi and Hungarian are built with a coreferential person suffix: Hungarian *engë-m* 1SG-1SG and *tégë-d* 2SG-2SG, exactly like Sosva Mansi *ān-um* and *nāŋ-ən*. This accusative formation is again in contrast to that of Khanty, where the accusative is built with *-t*, to an *n*-extended stem in all but the northwesternmost varieties, e.g. Surgut *mān-t*, Nizyam *man-t*. These Khanty forms are

reminiscent of more westerly Uralic forms like Finnish ACC *minu-t* and north Estonian GEN.ACC *m(in)u*, Erzya/Moksha GEN.ACC *moń*. There is a further piece of evidence in favour of a shared Hungarian-Mansi innovation if the *gë* component of Hungarian *engëm* and *tégëd* is indeed a relic of a proto-Uralic noun *ket ‘image, face’ (Helimski 1982, 96; Honti 1993a, 125–126; Aikio 2006a:17–19; cf. parallel accusatives in the now extinct Tavda (South) Mansi TJ (= Janytškova Tavda) $\epsilon m|k\grave{a}$ -m, $n\ddot{u}\eta|k\ddot{u}$ -n). This root is attested as such in western languages (e.g. Finnish *kesi*, stem *kete-* now current in the compound *orvas+kesi* ‘epidermis’; standard Erzya and Moksha *ked’* ‘hide’) and in Samoyedic (Janhunen 1977, 70 *kit¹) but again, not in Khanty.

[3] a suffix (or stem?) *moni is used in the names of various decades in Mansi, Hungarian, and Komi (see under numerals at 1.3.2.1)

[4] There is a shared self-designation: *magyar/megyer* for the Hungarians, *māñśi* for the Mansi, from an Iranian loan or loans with *ä; *magyar* is either a back-vocalic, suffixed pendant or a compound; on its final *r* as a plural suffix (see Janhunen 2017; see also Holopainen 2019 and Róna-Tas 2017).

These and other points of similarity led Janhunen (2000) to propose a node *Mansic*, by which he meant a language ancestral not only to the Mansi varieties but also to Hungarian: ‘The internal differentiation [of Mansi and Khanty] would seem to presuppose an early mediaeval time, while the separation of Hungarian from [proto-]Mansi must have taken place much earlier, that is, in the Bronze Age or early Iron Age.’ (Janhunen 2000, 362). This is an idea which has not caught on, but we shall pursue it briefly here. The scenario might run as follows: assuming that there was a Ugric node, [1] this first split into (Janhunen’s) Mansic vs. Khanty. Varieties of this Mansic, whose speakers had equiculture, borrowed separately the antecedents of ‘whip’ from an Iranian language or languages (Holopainen 2021; Mansic must have been of short duration, like Italo-Celtic, cf. Cowgill 1970, 114); [2] Mansic then split into proto-Mansi and Proto-Hungarian, and speakers of proto-Hungarian migrated away to the south and west, forming military (and bilingual) alliances and even coalitions with (mostly) Turkic-speaking groups; finally, [3] proto-Mansi then converged ‘back’ toward Khanty, to a greater degree in western varieties of that language (cf. Schmidt 1987). In connection with this scenario, one should recall that any truly full account of the prehistoric background of the Ugric languages will have to be able to explain or at least throw more light on the (earlier) status of the Khanty (traditionally) exogamic phratries, named in Sherkaly Khanty *mās* (stem *māñś-*) and *pör* (both words were apparently borrowed into Mansi, cf. Sosva Mansi *mā(ń)ś* and *pör*). Steinitz (1980) characterizes Khanty and Mansi traditional society, taken as a whole, to be ethnographically one, a unity which is transcended, however, by an overarching division into these two real and symbolic groupings.

And so there are problems with having a Ugric node. On the one hand if Khanty is a member of a Ugric node, it must have separated long before Janhunen’s Mansic split into pre-Hungarian and pre-Mansi; and this separation must *a fortiori* be (much) older than the subsequent convergence of pre-Mansi with pre-Khanty. Thus Saarikivi’s (2022, 57) adjudication: ‘If there is such a thing as Proto-Ugric, it is, without doubt, even older than Proto-Samoyedic.’ On the other hand highly varied loan relationships between Mansi and Khanty point to intense and protracted cultural contact before the eventual differentiation, in the modern era, into at least four distinct Mansi varieties and even more varieties of Khanty.

Whether or not they form a single node, Hungarian, Mansi and Khanty are usually said to have undergone the most restructuring of their declensional paradigms, albeit in opposite directions. Hungarian has increased its paradigm size the most; often, its case inventory is reckoned to be

over twenty. The Ob-Ugric languages on the other hand have diminished their stock of case suffixes, with the smallest systems in the northern varieties of both Mansi and Khanty.

In all three language-groups, however, there are possible traces of proto-Uralic genitive *-n and accusative *-m. For example, a nominative singular form like Hungarian *szëm-ëm* eye-1SG ‘my eye’ could easily descend from an earlier accusative (such as **ćilmä-m-mə* eye-ACC-1SG), and the parallel form *szëm-öd* eye-2SG ‘your eye’ is even more likely to have had such a background, namely **ćilmä-m-tə* eye-ACC-2SG, with perfectly regular *mt > d as in **kurmV|mtV* > *harma|d* three|DER ‘one third’, cf. 3.5.6; the most obvious parallel in a European context is the widespread generalization of accusative forms in the Romance languages. Parallel forms in the Ob-Ugric languages such as house-1SG/2SG in Sygva Mansi *köl-əm/-ən* (Kálmán 1976b, 31) and Surgut Khanty *kūt-əm/-ən* could equally well conceal an earlier accusative *-m- to the left of their person suffixes.

For conjugation in Ugric see 1.4.3.

1.1.2.6. Samoyedic

Samoyedic is not only the easternmost branch of the Uralic language family, it is in all likelihood also the branch that split away first from the proto-language. But its subsequent breakup and differentiation need not have been so very long ago; typologically and lexically the various Samoyedic languages are diverse, but no more so than those of, say, the Romance or Germanic groups in Indo-European. Regardless of the date we assign to proto-Uralic, i.e. whether we place it at four or six millennia BP, it seems safe to assume separation of proto-Samoyedic *ca* 2500 BP and the beginning of a spread of Samoyedic forms of speech northwards, with concomitant differentiation, *ca* 1500 BP.

The phonotactics of proto-Samoyedic consonants differed in several noteworthy ways from those of the branches to the west; the branch is also markedly richer in both moods and modalities and evidential categories. See Wagner-Nagy and Szeverényi 2022, 661–662 and 667–668.

We close this section by reprising the nine Saamic cognates (introduced above at Table 1.2), aluignng them with possible counterparts in the two other northward-tending branchec, Permic and Samoyedic. In the Table (Table 1.6) only the reconstructed protoforms for each branch are adduced: proto-Saamic (PSaa), Proto-Samoyedic (PSam), and Proto-Permic (PPerm). Forms and glosses are adapted from Lehtiranta 2000, Janhunen1987, and Mikhail Zhivlov’s PPerm (Chapter 3 of this volume, which should be consulted in examining this table).

Table 1.6. Proto-Saamic, proto-Samoyedic, and Proto-Permic parallel vocabulary

<i>gloss</i>	tree	liver	eye	water	stone	fire	bow	arrow	needle
PSaa	*mōrê	*mōksē	*ćęlmē	*ćāćē	*kēδkē	*tolę	*jōkse	*ńōļę	*ājmē
PSam	*pā/a	*mitê	*sêjmä	*wit	*pâ/âj	*tuj	*ıntê	*ńe/ęj	*(n)ejmä
PPerm	*pu	*mus(k)	*šin(m)	*wâ	*+ki	*tjł	---	*ńęł	*ejm

Five of the nine sets of vocabulary in Table 1.6 (‘liver’, ‘eye’, ‘fire’, ‘arrow’, and ‘needle’) are unproblematic cognates, with few if any unsettled details. As noted in connection with Table 1.2, Saamic has replaced the Uralic word for ‘tree’, and the Saamic word for ‘water’ has a probable cognate only in Khanty, but the more widespread term (*weti) occurs in all the other branches. Words for ‘stone’ seem to have been unstable, and the Permic reflex given here

(*+ki) is attested only as the second member of a compound (*iz+ki*, in which *iz(-)* is the more common Permic word for ‘stone’ — and as a verb means ‘grind’). Finally, we note that Permic has lost the old Uralic term for ‘bow’ (and also for ‘bowstring’), along with some other hunting terminology, perhaps most noticeably the word for hypernym for ‘fish’.

1.2. Phonology: transcription and *parti pris*

The purpose of this section is to give a quick introduction to the methods of transcription used in this volume. On the whole, the symbols are standard IPA, sometimes with slight modifications; they have been selected in terms of a crude surface phonology, guided by (mainly) articulatory phonetics as outlined in Catford (1977) and (2001), and in Gick et al. (2013).

For the vowels, ‘reversed *e*’ is used to write a close (or ‘upper’) mid central unrounded vowel, IPA [ə], as in Komi *kəv* ‘rope’. A high central unrounded vowel is written with ‘barred *i*’, as in Komi *kiv* ‘tongue, language’, but a high **back** unrounded vowel is written with *i*-diaeresis <ï> and normally not with <u>; this latter symbol is usually eschewed in this volume because it can be misleading, as it has often been used to write various rounded central mid or high vowels. Similarly ‘ram’s horns’ <ɾ> have not been used to write unrounded back mid vowels, as in many fonts the glyph used for this symbol is easily confused with gamma (= voiced velar fricative IPA <ɣ>); we use instead the symbol <ë>, in parallel with our spelling of the unrounded central (or back) high vowel. (We should note here that no Uralic language distinguishes central vs back unrounded vowels at the same phonological tongue height.)

The reduced vowel of Tundra Nenets may be written with <ã>, <ə>, <ø>, superscript <^ə>, <^o>, or not at all. For example *yempəsə-dəq* get.dressed-IMP.2SG ‘get dressed!’ may also be written *yemp^osød^oq*, spelling out the full vs reduced, stress-conditioned renderings of this vowel (as at Salminen 1997, 105) or in any of a variety of transliterations of Cyrillic <ембасад" >.

Depending on the chapter concerned, length in vowels is transcribed either with the IPA length mark <: > after, or with macron over, the symbol, thus Tundra Nenets long (or ‘stretched’) *ú* may be transcribed with <u: > or <ū > and Hungarian *szabadság* ‘freedom’ would be transcribed as [sɒbɒtːʃaːg]. In this introductory chapter we depart from tradition in writing out explicitly the quantities of both Mansi and Khanty vowels, so for example we write both the Surgut Khanty and Sosva Mansi words for ‘nail, claw’ with micron (*kõñč*, *kõs*) and both words for ‘fish’ with macron (Surgut Khanty *kūl*, Sosva Mansi *xūl*). Mansi/Khanty correspondences may then be compared with greater convenience, e.g. Sosva Mansi/Surgut Khanty ‘wave’ with *ũ* : *ū* (*xūmp/kūmp*) but ‘flea’ with *ū* : *ũ* (*sūs/čūñč*).

Length in consonants may follow IPA practice, as in [sɒbɒtːʃaːg] above, or where greater detail is required the consonant symbol is written geminate and the relevant quantities are singled out individually, e.g. for North Estonian both macron and micron may be used, as in *kappi* ‘cupboard (ILL)’ [kaṗṗi] vs. *kappi* [kaṗṗi] ‘cupboard (GEN)’ and the short singleton of *kabi* [kaṗi] ‘hoof’, cf. 8.3.3.

All authors have striven to distinguish, where possible, palatal from palatalized speech sounds, but differences in the articulatory parameters used to describe and denote these sounds vary somewhat from practitioner to practitioner. In general, we write <ʎ> for a voiced palatal lateral approximant, and <ɲ> for a voiced palatal nasal, and we write <c ɟ> for voiceless and voiced palatal stops with no (or minimal) friction release. We follow IPA convention in using superscript <ɟ> to write palatalized consonants, e.g. <ɲ^ɟ n^ɟ t^ɟ d^ɟ>, but note that the oral stoppage in such instances, usually apical, can range from dental through the prepalatal zone. Apostrophe

is also widely used to write palatalization over letters with ascenders, e.g. <d' t' l'> in Moksha (Table 11.3).

But when we discuss palatals and palatalization in connection with the median (non-lateral) fricatives and their corresponding affricates, we are in a different world. Here the active and passive articulators are not in contact, and as a result pinpointing their locations and postures is not so straightforward. For Uralic languages the most salient distinction among these sounds is one that in our opinion is least ambiguously conveyed by the auditory-based terms *hissing* vs. *hushing*. Among the latter, the sounds written with IPA <ɕ> vs. <ʃ> are here both interpreted as voiceless laminal hushing fricatives, the chief difference between them being taken to be one of secondary articulation: <ɕ>, as in Polish *sierp* 'sickle' [ɕerp] and Mandarin Chinese 心 *xīn* 'heart' [ɕin], is palatalized while <ʃ> is not. (Ladefoged and Maddieson 1996, 164 refer to these Polish and Chinese sounds as 'laminal palatalized post-alveolar (alveolo-palatal) ɕ'. Numerous factors complicate the description of hushing sounds, including the obstacle (upper vs lower teeth) and whether or not a sublingual cavity is involved; even sibilants can be 'tongue-tip-up' or 'tongue-tip-down' (Johnson 2003, 127). We agree, therefore, with Catford (2001, 158–159) that a reasonable substitute for <ɕ> would be <ʃ̟>. Neither <ɕ> nor <ʃ̟> is therefore strictly and simply 'palatal': the strictly and simply palatal fricative, when voiceless, is written as IPA [ç], and we can map these three median laminal fricatives along a front-to-back continuum, from 'palato-alveolar ('domed')' <ʃ̟> through 'palatalized alveolo-palatal' <ɕ> to palatal <ç> (cf. Pullum and Ladusaw 1996, 33). A palatal cannot be palatalized; but the s(h)ibilants can, and alongside palatalized hushing <ɕ> (= <ʃ̟>) there are also varieties of apical, hissing palatalized <sʃ̟>, as in Russian синь [sʃ̟inʲ] 'blue', Tundra Nenets *syíqwo* ([sʃ̟iʔw]) *cu''uə* 'seven' or Northern Estonian *põsk* [põsʃ̟k] 'cheek'.

In all cases, both the editors and their contributors have sometimes resorted to mixed transcription practices, either because it serves to clarify a point or, more commonly, because we have wished to preserve the transcription used by the source. Thus, the mid central unrounded Komi vowel which is usually written in the book as <ə> will occasionally be cited with <ö> (Unicode 00F6) in keeping with the source, which uses this letter to transliterate the Cyrillic <ö> (Unicode 04E7). Similarly, the ultrashort pronunciation of the Tundra Nenets short or reduced vowel may be written with <^o>, <^ä>, or nothing, in keeping with the source or tradition on which the chapter (or example) draws; a further example is the Tundra Nenets word for 'old (INANIMATE)', which can be written *ńewxī* (Hajdú 1968, 107) or *n'ew^oxi^o* (Nikolaeva 2014, 170) or, as here, just *nyewəxiə*, assuming that the user is familiar with the morphophonemics.

Problems of devising comparable transcriptions are addressed in Kümmel (2007), which offers an overview of consonant inventories and sound changes attested in a range of Semitic, Indo-European, and thirty-two Uralic languages.

1.2.1 Vowels and stress

In both Finnish and Hungarian primary word stress is on the first syllable. In Finnish, secondary stress is said to occur on following odd-numbered non-final syllables, as in '*nau.tis. kel.laan* 'let's enjoy', '*suo.ma. lai.nen* 'Finnish, Finn', '*koi.ra. nul.koi. lut.ta. ja.lle* 'to a/the dog-walker', but if the odd-numbered syllable ends in a short vowel the stress moves to a following heavy syllable, as in '*ta.paa.mi. ses.ta* meeting-ELA (VISK 2004, §13). A similar distribution of secondary stresses is usually posited for Hungarian, as in the accusative and elative of 'Africa' ('*Afrikát*, '*Afri.kából*) but with secondary stress on the fourth syllable in

'*agyoncsi gázott* 'over-worked' and '*jó.a.ka. ró.ja* well.wisher-3SG. Particular construction types such as *majd el felejtettem* 'I almost forgot!' and compounds complicate the picture in both languages (see Nádasdy and Kálmán 1994; Nádasdy 2004; Varga 2002; Simonyi 1903, 36).

Across the family, most languages have mainly word-initial primary stress, with trochaic patterning in longer words, i.e. secondary stresses on non-final odd-numbered syllables. This description is valid generally for Saamic and Finnic (where syllable weight can complicate the picture, as illustrated above) as well as Mansi and some varieties of Khanty (but see Filchenko 2007. Toward the centre of the family, Mordvin and Mari varieties vary considerably with regard to stress patterns. Eastern Mari is often described as stressing the last full vowel, e.g. *mas 'ka* 'bear' but '*purə* 'good', '*kudə|mfə* 'sixth'; note however that final reduced vowels are often secondarily pronounced a full ('*puro*). If the word contains no full vowel, stress retracts to the first syllable: '*pələ|dəme* ear|CAR 'earless (= deaf)' (12.3). Complications arise in connection with loan words (and not only recent Russian ones, e.g. *teŋ 'ge* 'ruble' is a Tatar loanword) and because certain (mostly derivational) suffixes attract the stress (e.g. negative gerund in *-de*). Alhoniemi (1985:18) described free variant stress in certain inflected forms such as *ki 'δ-em-lan* ~ *kiδ-em-lan*, both hand-1SG-ALL 'to my hand'. Hill Mari is generally stressed on the penult (e.g. '*möska* 'bear', '*purə* 'good') although certain suffixes attract the stress (e.g. comparative '*yftä* 'cold' > '*yftä'ræk* 'colder') while others never count as ultima, i.e. do not play a role in the syllable count: '*əskal-βlæ* 'cows' (RHM 67), '*pu 'fæŋgə-βlæ-m* 'trees (ACC)' (RHM 79), '*kuδə|mfə* 'sixth' (RHM 200), '*kuyu 'za-βlæ-ftə-læn* uncle-PL-3PL-DAT 'to their uncles' (RHM 88). The stress *can* retract from a reduced to a full vowel: '*kiδə-ftə* hand-INE (RHM 49), but '*læ 'zəræ* 'watery' (RHM 59). Udmurt word stress is primarily final, with systematic morphological exceptions, e.g. imperatives '*koŋki* 'go!', negatives *ug 'koŋkieki* 'I'm not going', affective reduplicatives '*čilčil εəd* 'blackest black' (13.3; Geisler 2005, 154); in Komi, word stress is primarily on the first syllable (14.3.3.2), while Komi-Permyak dialects exhibit complexly varied patterns of stress assignment connected with derivational vs. inflectional suffixation (Batalova 1982, 39–49).

Yazva Komi stands out for its historically determined stress assignment. Under most suffixation, stress (which we write here with acute accent) remains on the high vowels /i ʉ u/ if they originate in high mids, for example *jím-an* needle-INST, *sús-an* sleeve-INST, *vúr|a* forest|ADJ (compare Komi standard *jem-ən, sosk-ən, vər|sa*, all with first-syllable stress), but roots containing /i ʉ u/ that continue earlier high vowels lose the stress to a following suffixal vowel, for example *ńim-án* name-INST, *śur-jáz* horn-PL, *tuj-án* road-INST (compare Komi standard *jim-ən, eur-jas, tuj-ən*, again all with first-syllable stress). The ordinal-forming suffix attracts the stress despite its *ʌ* vowel, e.g. *kvim|át* 'third', as do a number of verb-deriving suffixes such as semelfactive *|át-*, e.g. *várt-nʌ* strike-INF 'to strike' but *vart|át-nʌ* strike.SEM-INF 'to strike once' (Lytkin 1961, 60, 70). On the status of Yazva Komi in the twenty-first century see Tsypanov (2009, 207–224).

1.2.2. Vowel inventories

Finnish has eight vowel phonemes (Table 1.7). Vowel length is distinctive, for example *takka* 'fireplace' : *taakka* 'burden', yielding an [8+8] inventory; Suomi et al. (2008, 20) provide an eight-member set of minimal-pair short vowels in inflected forms. The quality of short and long vowels is nearly identical, with the exception of the mid vowels, which are more open when long. All long vowels are frequent in the first syllable apart from the mid vowels, which appear mostly in loan words, e.g. *sooda* 'soda', *teema* 'theme', *Töölö* (placename); earlier long

mid vowels have diphthongized, e.g. *suola/liemi/syötti* ‘salt/broth/bait’, cf. northern Estonian *sool/leem/sööt*. Before clusters of (short) resonant plus long obstruent, however, only short vowels occur, e.g. *pirtti* ‘cabin, cottage’, *kontti* ‘birchbark knapsack’. In later syllables the long vowels appear mainly in inflected, derived or borrowed words, e.g. *sata-a* rain-3SG ‘it’s raining’ (contrast *sata* ‘hundred’), *talo-on* house-ILL ‘into a house’; *tarpee|llinen* need/ADJ ‘necessary’ (NOM.SG *tarve*^x); *poliisi* ‘police’, *mysteeri* ‘mystery’.

Table 1.7. Finnish vowel phonemes preceded by graphemes. Short and long versions are separated by commas.

	Front		Back	
	Unrounded	Rounded	Unrounded	Rounded
Close	i /i/, ii /i:/	y /y/, yy /y:/		u /u/, uu /u:/
Mid	e /e/, ee /e:/	ö /ø/, öö /œ:/		o /o/, oo /ɔ:/
Open	ä /æ/, ää /æ:/		a /ɑ/, aa /ɑ:/	

Hungarian has a vowel inventory which is superficially almost identical to this, with a [7+7] system exploiting three tongue heights, frontness/backness, and lip-rounding in the front vowels (Table 1.8). The main orthographic difference is that the long vowels are written with an acute diacritic (or doubled diacritic, as in <ö> for long /ø:/); the main phonological difference is that the long vowels written <á> and <é> differ dramatically from their short counterparts, and that Hungarian long mid vowels are pronounced slightly higher than their short counterparts, i.e. the reverse of their Finnish analogues. Worthy of note is a fifteenth Hungarian vowel /ɛ/, i.e. not /æ/, written with <ë> in dialectological and musicological texts; it is fairly widespread but not recognized as standard, but its distribution in the lexicon is fairly uniform, and it is included here because of its usefulness to description and reconstruction.

Table 1.8. Hungarian vowel phonemes preceded by graphemes. Short and long versions are separated by commas.

	Front		Central	Back
	Unrounded	Rounded	(Unrounded)	Rounded
Close	i /i/, í /i:/	ü /y/, ű /y:/		u /u/, ú /u:/
Mid	(ë /ɛ/) é /e:/	ö /œ/, ő /ø:/		o /ɔ/, ó, /o:/
Open	e /æ/		á /ɑ:/	a /ɒ/

There are also marginal phone(me)s in a few deictics (e.g. *arra* [ˈv:(r)rɒ] ‘in that general area/direction’, *balra* [ˈbɒ:(r)rɒ] alongside [ˈbɒrrɒ] ‘to the left’) and for a great many speakers short vowels undergo lengthening in specific phonotactic and morphotactic positions (e.g. *asztal-t* [ˈɒstɒ:lt] table-ACC, contrast *asztal-ok* table-PL [ˈɒstɒlɔk]). It is not clear in what way these phenomena are connected with the well-known length alternation affecting the high vowels, as in *ír* [ˈi:r] ‘s/he writes’ : *irat* [ˈi:rɒt] ‘document’.

The Hungarian standard language does not recognize two *e* vowels, but morphophonemically they are quite distinct (and they are written in Table 1.7 as /ɛ/ and /æ/). Standard Hungarian ¹*e* corresponding to (dialectal) /æ/ has back-prosodic vowel harmony alternant /ɒ/ (contrast front-prosodic *szűr-nek* filter-3PL ‘they filter’ with back-prosodic *szúr-nak* stab-3PL ‘they stab’), and it alternates paradigmatically with /é/ (*verebe-t* sparrow-ACC.SG vs. *veréb* sparrow.NOM.SG). Standard ²*e* (corresponding to dialectal /ɛ/) has as vowel harmony alternants /ö/ and /o/ (as in the plural and allative suffixes when attached to ‘heretic’, president’, and ‘orator’, viz. *eretnek-*

äk-höz, elnök-ök-höz, szónok-ok-hoz, a triad which we may cover with the symbol <3>, thus: -3k-h3z -PL-ALL), and it alternates with its long counterpart /é/ only in a restricted set of morphemes (more on vowel harmony below).

This state of affairs mirrors the behaviour of stress-repelling and stress-retaining high vowels in Yazva Komi, mentioned above, and has a consonantal counterpart in the ‘two’ glottal stops of Tundra Nenets (19.3).

The Finnish vowels differ even more notably from those of standard Hungarian in that they combine to form eighteen diphthongs. (In many Hungarian dialects however diphthongs commonly replace long mid vowels, e.g. the /é/ of *szép* ‘beautiful’ is either closing [‘ei] or opening [‘ie], Fazekas et al 2002, 9). The Finnish closing diphthongs are *ei öi äi oi ai, ey öy äy*, and *eu ou au*. Diphthongs with high vowels transitioning from rounded to unrounded (or the reverse) are *yi ui* and *iy iu*. (The non-low front vowels /i e y ö/ do not readily combine unless agreeing in [+/-] roundedness, Karlsson 1982, 84.) The opening diphthongs are *ie yö uo* (a recent development, originating in long mids and occasioning the aforementioned relative rareness of these, cf. Finnish *vieras* ‘guest’ vs Ingrian *vēras* ‘strange’, Estonian *võõras* ‘stranger’). Other combinations of vowels are regarded as belonging to different syllables, e.g. the combination *ea* in *vai.ke.a* ‘difficult’ and *io* in *ra.di.o* ‘radio’. Perhaps the most characteristic difference between the Finnish vowel system and those of other Finnic languages is that Finnish has lost what must have been an older back unrounded vowel (and which survives, for example, in Estonian *õ* (9.2.1; 10.2.1). Finnic /ö/ is always secondary and is prominent in affective-descriptive and foreign vocabulary (Austerlitz 1994), but Hungarian /ö/ is older, stemming usually from PU *ü or *wi; the long equivalents of these vowels have quite different origins (3.5.1 and 3.5.6.1).

Seen in Uralic perspective, the Finnish and Hungarian vowel inventories, with [8+8] and [7/8+7] vowels respectively, are slightly on the generous side. Many more languages in the family have fewer vowel distinctions, for example Erzya with five (*i e a o u*); Moksha, Udmurt, and most varieties of Komi with seven (Yazva Komi substitutes rounded central /ɤ ɵ/ for standard /i ə/) (12.3.1, 14.3, 15.3.1); or Skolt Saami with nine (7.2). Some languages with well-developed quantitative oppositions (in the first syllable, at least) are not much larger than this, for example Northern Mansi, with ten vowels, five short (*ĩ ě ǎ ǒ ũ*) and five long (*ī ē ā ō ū*), and much of Northern Khanty, with nine or ten vowels, e.g. reduced (*ĩ ũ ə ǒ ǎ*) and full (*ī ū ē ō*) in the Ust’-Sobskij subdialect (Nikolaeva 1995, 23). Other languages achieve their moderately substantial inventories by exploiting the short/long or full/reduced opposition less extensively, for example Tundra Nenets with short or plain (*i e a o u*), plus three longer, ‘stretched’ peripheral vowels (*i ú é*) and a reduced vowel now usually written <ə> or <°> according to its prosodic prominence (20.3). In parallel fashion, Mari languages have eight and nine full vowels (*i ü u e ö o a* plus schwa in Meadow Mari; Hill Mari adds a front full /ä/ and a front schwa /ǣ/) (13.3), and there is, or was, considerable variety in traditional dialects (see Aikio 2014, 125–157).

1.2.3. Vowel systems: Vowel Harmony and other alternations

Both Finnish and Hungarian vowels are distributed in accordance with broadly similar systems of vowel harmony, whereby back and front vowels do not normally occur in the same non-compound word. The phonetically front vowels /i/ and /e/ are phonotactically neutral in both languages in the sense that they can combine with both groups within a word, e.g. Finnish *sika* ‘pig’ and *silmä* ‘eye’, Hungarian *zafir* ‘sapphire’ and *zéfír* ‘zephyr’. Straightforward examples are Finnish *talo-ssa* house-INE ‘in a house’, *päivä-ssä* day-INE ‘in a day’; *ruotsa|lainen*

Sweden|ADJ ‘Swedish’, *venä|läinen* Russia|ADJ ‘Russian’; *talo=kaan* house=ENC ‘neither the house’, *metsä=kään* forest=ENC ‘neither the forest’ and Hungarian datives singular of ‘summer’ and ‘winter’, *nyár-nak* summer-DAT and *tél-nek* winter-DAT, *kár|os* damage|ADJ ‘harmful’, *szél|ës szél|ADJ* ‘sharp’; Hungarian enclitics *is* and *së(m)* do not harmonize: the orthography has *erdő së, ház së* ‘neither forest nor house’.

The two languages differ, however, in the inflectional and derivational morphology of roots containing these (non-distinctively) front vowels. When inflected, Finnish roots like *hiiri* ‘mouse’ and *etsi-* ‘to seek’, which contain no vowels other than /i/e/, function as front-vocalic words, e.g. *hiire-stä* mouse-ABL ‘about a mouse’, *mene-vät* go-NONPST.3PL ‘they go’. In derivation however roots having only these vowels can take back-vowel variants of derivative suffixes, for example noun *men|o* go|N ‘course, ride’, and from verb *kiittä-* ‘to thank’ we have derived noun *kiit|os* ‘thanking, thanks’, from *itke-* ‘to cry’ we have noun *itk|u* ‘crying’, *kerj|ä-* ‘to beg’ but noun *kerj|uu* ‘begging’. Doublets do occur, usually with semantic differentiation, e.g. *niitt|o* ‘a mowing’, *niitt|y* ‘meadow’ both from *niittä-* ‘to mow’.

Hungarian inflection has a few dozen root shapes which, abstracted from their paradigms, have ambivalent prosody (on Hungarian vowel harmony in general, see the recent Rebrus and Törkenczy 2021). As an example we may take the nominals ¹*ír* ‘Irish’ and ²*ír* ‘balm’, which take front vs back suffixes, e.g. *ír-ból* Irish-ELA ‘out of Irish’ but *ír-ból* balm-ELA ‘out of balm’. Such superficially subminimal pairs as front-vocalic *színes* ‘in colour’ vs. back-vocalic *inas* ‘sinewy’ are a different matter: they are not a problem in an approach which reckons with morpheme structure, since in the latter form the root ends in a low vowel to which certain suffixes are sensitive (compare the accusatives *szín-t* vs. *ina-t*). This rather simplified picture is made more complicated by loan words, including some old ones (like Hungarian *templom* ‘house of worship’, with [æ]), and the partitives singular of Finnish *veri* ‘blood’ and *meri* ‘sea’, which show back vocalism in the partitive (*ver-tä, mer-tä*) but take front-vowel endings otherwise (e.g. inessive forms *vere-ssä, mere-ssä*).

Both Finnish and Hungarian are typically Uralic in that they have larger sets of vowel oppositions in first syllable than in subsequent ones. Many of the restrictions in vowel inventories in non-first syllables are due to vowel harmony, but not all: in Hungarian, for example, the short midvowels (*ë ö o*) do not occur word-final in nominals or verbs.

Across the family, various kinds of vowel harmony, both root-or-stem-internal and suffixal, are quite widespread, although vowel harmony is vestigial or absent in many of the languages because of either reduced vowel inventories in non-first syllable, as in Northern Estonian (8.3.1) or northern varieties of Khanty (e.g. Nikolaeva 1995, 35), or else major changes to the vowel system (as in Saamic: see Table 3.6 ‘Saami vowel shift’), or both (Permic: see 3.4.5, and Klumpp 2022, 476–477). Tundra Nenets preserves traces of vowel harmony in optional doublets of certain inflected forms such as *syí-wən(y)a* hole-PROS (Salminen 1997, 66; see also Wagner-Nagy and Szeverényi 2022, 662).

To paint the picture with broad typological strokes, we can say that at one extreme there is the relatively straightforward type of vowel harmony seen in Finnish, in which inflectional suffixes containing vowels with distinctive frontness/backness conform to the root or stem to which they are attached (or *welded*; cf. Haspelmath 2021), as in the *-a/ä* (which we may abbreviate with majuscule of the back-vocalic pendant: *-A*) of the Finnish inessive suffix in *-ssa* seen in *talo-ssa, päivä-ssä* cited above; other pairs are the non-low *u/y* (U) and *o/ö* (O) occurring in derivational suffixes such as *|mUs* (*|mUksE*) in *sopi|mus, elä|mys* ‘agreement’, ‘experience’

(from verbs *sopi-* ‘to agree’, *elä-* ‘to live’), |O in *jak|o*, *läht|ö* ‘distribution’, ‘departure’ (from verbs *jaka-* ‘to distribute’, *lähte-* ‘to depart’) and |iO in nouns *ol|io*, *el|iö* ‘being’/‘organism’ (cf. *ole-* ‘to be’). Hungarian has a richer set of such harmonic vowel-pairs, with *u/ü a/e* (and their long equivalents *ú/ű á/é*, as well as *ó/ö*) all occurring in both inflection and derivation, as illustrated by forms of the verbs *vár-* ‘to (a)wait’ and *kér-* ‘to request’ (Table 1.9).

Table 1.9. Hungarian harmonic vowel pairs: 1PL.P.PS = first person plural subject, centripetal; 3PL.F.PT = third person plural subject, centrifugal (for the meanings of ‘centrifugal’ and ‘centripetal’, see section 1.3.3).

	suffix(es)	root		translation
		vár-	kér-	
1PL.P.PS	-Unk	<i>vár-unk</i>	<i>kér-ünk</i>	‘we (a)wait/request’
3PL.P.PS	-nAk	<i>vár-nak</i>	<i>kér-nek</i>	‘they (a)wait/request’
3PL.F.PT	-t-Ák	<i>vár-ták</i>	<i>kér-ték</i>	‘they (a)waited/requested’
1PL.F.CD	-n-Ók	<i>vár-nók</i>	<i>kér-nők</i>	‘we awaited requested him/her/it’
ACT.PTCP	Ó	<i>vár/ó</i>	<i>kér/ő</i>	‘(the one) (a)waiting/requesting’

The Hungarian two-way alternation *o/ö* seems to function only in derivation, and then sporadically.

Elsewhere in Uralic the system closest to this Finnish and Hungarian type is perhaps that reported for the easternmost varieties of Khanty, where we seem to have similarly regular alternating vowel pairs; we have, for example, Vakh Khanty back/front (*u a ə/ö ä ü/ë*) vocalism in the vowels of the verb forms *qūŋt-Ø-ayən* climb-PST-3SG ‘s/he climbed’ vs *nöräyt-Ø-ägän* run-PST-3SG ‘s/he ran’ (Tereshkin 1961, 114, also 17–19; see more recently Vorobeva and Novitskaya 2020). Surgut varieties of Khanty attested at the end of the nineteenth century still showed some evidence of vowel harmony, but it is now no longer productive: *päy-am* son-1SG ‘my son’, *kōt-äm* hand-1SG ‘my hand’ (Paasonen and Donner 1926; note emerging complexity in present-day Surgut Khanty, with allomorphy of a different distribution 16.4.1). Hill Mari is also largely similar, with back/front low *a/ä* and front and back schwas *ə/ə* (12.6). Yazva Komi and some peripheral dialects of Udmurt (e.g. Kukmor in Csúcs 2005, 33) are described as having similar qualitative inventories but without the systemic feature of vowel harmony.

Hungarian and Eastern Mari vowel harmony is also slightly more complex in that the opposition [+/- rounded] is also involved. The rules of selection have opposite priority in the two languages: on the one hand we have in Hungarian front [+/- rounded] *ö/ë* versus back, non-distinctively rounded *o* in the nominative and accusative forms of ‘twin/ox/bush’, namely *ökör/ikër/bokor* vs *ikr-ët/ökr-öt/bokr-ot*, while we have rounded [+/- front] *ö/o* versus front, non-distinctively unrounded *e* in the Eastern Mari active participle suffix *-fö/o/e* (Table 13.5) seen in *pört|šö/pušt|šo/nal|še* ‘buyer/killer/taker’ from the verbs *pört-* ‘to buy’, *pušt-* ‘to kill’, *nal-* ‘to take’.

Roots that are homophonous on the surface but have different harmonic prosodies like Hungarian ^{1,2}*ír* ‘Irish’/‘balm’ (mentioned above) occur also in Nganasan, cf. ^{1,2}*hon-* ‘to possess/to plait’ (17.3.2). But vowel harmony has been extensively distorted in this language so as to become to a large degree unpredictable: at least one wave of palatalization and various vowel mergers and rotations (**i/ü > i*, **e > i*, **ä > e* and (later) **u > ü* as well as **ö/o > u*, **ä > o*) have partially replaced the old front/back harmony with a new, crypto-labial one. We can

see this for example in allomorphs of the 3SG suffix on nouns: PU front unrounded *pesä has become back-vocalic but retains its illabiality, its 3SG being back unrounded *-ði* (*hiti-ði*, from PU *pesä-(n)sä; contrast Tundra Nenets *pyidyā-da*). Conversely PU back unrounded *jįnsi ‘bow’ has come to have surface front vowels in its stem but has labial prosody, its 3SG suffix being back rounded *-du* (*d’intə-du*, from PU *(j)įnsi-(n)sa: contrast Tundra Nenets *įin^o-da*, and note the [i:] of Hungarian *ín* ‘bow’, which retains its back-vowel prosody in inflected forms like ACC.SG *ina-t*).

A further wrinkle may be found in what Rédei (1987, 48) termed *syllabic synharmony* and Viitso (1987, 305) called *group harmony*. Here we see prosodies which are shorter than the phonological word, yet which exhibit features reminiscent of vowel (and consonant) harmony. Examples are Erzya pleophony, which, in a manner reminiscent of the synchronic alternations of east Mari’s reduced vowel ə (12.3), replaced harmonically neutral schwa with [+/-] back, [+/-] rounded full vowels, specifically: front/back alternants are occasioned by [+/-] palatal(ized) consonant(ism)s as in Erzya inessives *-so/-se* (*kal-so/kali-se* fish-INE/willow-INE, contrast Moksha *kal-sə/kali-sə*, where the difference is at most subphonemic), or, in the reverse scenario, [+/-] palatalized consonants are occasioned by front/back vocalisms (the ‘vestigial’ vowel harmony mentioned above), as in Tundra Nenets allomorphs of locative *-xən(y)a*, e.g. *po-x²na/nyo-x²nya* year-LOC/door-LOC from proto-Samoyedic back-vocalic *po vs front-vocalic *nö (3.4.3).

Finally, yet another kind of alternation has occasionally been subsumed under vowel harmony, one which might be better termed a kind of vowel copy (sometimes called ‘transglottal harmony’) such as that of the Finnish illatives *tie-hen/yö-hön/suo-hon* road-ILL/night-ILL/bog-ILL, with exact copy of the vowel preceding the /h/ segment. Later in the word, this /h/ is generally lost, yielding long vowels in non-first syllables, as in the example *talo-on* house-ILL cited above, from earlier *talo-hon; compare other illatives such as *kesä-än kesä-ILL* (< *kesä-hän) and *omena-an* apple-ILL (< *omena-han). This kind of vowel copy seems always to involve short or reduced, often epenthetic, vowels; these also often occur either side of glottal stop, as in Tundra Nenets *waqw^o* [waʔ^aw] ‘bed’ and *tyuqəy^o* [t’uʔ^uj] ‘upper’; in some Tundra Nenets dialects this phenomenon is a regular concomitant of alternative aorists of obstruent-final stems, as seen in the extra-short copied vowels ⁱ and ^e of *myiʔⁱ-wə* give-AOR-1SG>S ‘I gave it’, *maneʔ^e-wə* behold-AOR.1SG>S ‘I beheld it’ (Hajdú 1968, 59; Salminen has -ə- for -ŋa- here: 1997, 100). One can also compare, in Lule Saami, the extra-short vowels in so-called grade III clusters (Ylikoski 2022, 135), where extra-short [^{e a o}] break up the clusters of the NOM.SG forms of *dárbbō* ‘need’, *girjje* ‘book’, and *gálmamá* ‘three’, yielding [tar^apuo] [kir^ejje] [kol^omo]. A similar sort of behaviour is found either side of /x/ in Tundra Nenets (19.3; see also Janhunen 1986, 38 and Salminen 1997, 33).

On vowel harmony in Finnish, Hungarian and elsewhere Anderson (1979) is particularly rich in detail and original in analysis.

1.2.4. Consonant inventories and systems: gradation and other alternations

Finnish has no firmly established opposition of voice in its core vocabulary and is unique in the family in having a consonant paradigm with no opposition of palatalisation or palatals (Table 1.10).

Table 1.10. Finnish consonant phonemes preceded by graphemes. The glottal stop is not represented in the orthography.

	Labial	Dental/ Alveolar	Palatal	Velar	Glottal
Nasal	m /m/	n /n/		n(g) /ŋ/	
Plosive	p /p/	t /t/ d /d/		k /k/	/ʔ/
Fricative	v /v/	s /s/			h /h/
Glide			j /j/		
Lateral		l /l/			
Trill		r /r/			

Note that the velar nasal /ŋ/ appears not only before /k/, e.g. *vanki* [vaŋki] ‘prisoner’, but also intervocalically as a long geminate, as in the plural of this word, where the final closed syllable conditions gradation, viz. *vangi-t* [vaŋŋit] prisoner-NOM.PL ‘(the) prisoners’. In addition to the consonants in Table 1.9, /b/, <g> /g/, <f> /f/ and <š> or <sh> /ʃ/ occur in much foreign-origin lexis (e.g. *baari* ‘bar’, *gorilla* ‘gorilla’, *fani* ‘fan’, *shakki* ‘chess’) and colloquial (or slang) vocabulary (e.g. *futis* ‘football’, *baila^t* ‘to dance’, *digga^t* ‘to like’). The voiced marginal sounds may be pronounced as [p] and [k], e.g. [pa:ri] instead of [ba:ri]. The voiced stops /b/ and /g/ may also be used in foreign words due to hypercorrection or by accident (e.g. *logopedia* ‘logopedy’ may be pronounced [logobedia]) or affective purposes (e.g. English *piece* becomes *biisi* [bi:si] ‘song’ in Finnish slang) (VISK 2004, §6). The sound /d/ appears in many loanwords, e.g. *dinosaurus* ‘dinosaur’, *budjetti* ‘budget’ as well as affective vocabulary such as *dödö* ‘underarm deodorant’; in domestic vocabulary it represents the standardized form of the weak grade of /t/, e.g. *katu* ‘street’ : *kadulla* ‘on the street’.

The Finnish stops /p/ /t/ and /k/ are subject to various qualitative and quantitative alternations known as *consonant gradation* triggered by both phonological and grammatical contexts. Fortis (‘strong’) grades generally occur before open syllables (including long vowels) as in *Englanti* ‘England’, *Englanti-in* England-ILL ‘(in)to England’, *englanti/lainen* England|DER ‘English(man)’, *englanti-a* English-PART. Lenis (‘weak’) grades generally occur before closed (short) syllables as in *Englanni-ssa* England-INE ‘in England’, *Englanni-n* England-GEN ‘England’s’. Parallel forms with the alternation *ntt* : *nt* are *vintti* ‘attic’, *vintti-in* attic-ILL, *vintti|mäinen* attic|DER ‘attic-like’, *vinti-llä* attic-ADE, *vinti-n* attic-GEN. A simplified schematic representation of the consonant gradation system can be found in Table 1.11.

Table 1.11. General patterns of consonant gradation in Finnish (simplified)

Strong	Weak	Examples (nominative and genitive singular -n)	
/kk/	/k/	rakas : rakka-n <i>dear</i>	taakka : taaka-n <i>burden</i>
/pp/	/p/	opas : oppaa-n <i>guide</i>	soppa soppa-n <i>soup</i>
/tt/	/t/	ratas : rattaa-n <i>wheel</i>	aitta : aita-n <i>granary</i>
/p/	/v/	havas : hapaa-n <i>fishnet</i> <i>mesh</i>	tapa : tava-n <i>way</i>
/t/	/d/, in dialects /r, l, ð, ø/	keidas : keitaa-n <i>oasis</i>	seita : seida-n (<i>Saami sacred place</i>)
/k/	/‘Ø’, j, v/	kiuas [kiūuas] : kiukaa-n <i>heap of stones in sauna</i>	sika : sia-n <i>pig</i> luku : luvu-n <i>figure, chapter</i> reki : ree-n <i>sled</i> vaaka : vaaq-n <i>scales</i>
/mp/	/mm/	kammas : kampaa-n <i>comb</i>	rampa : ramma-n <i>cripple</i>
/nt/	/nn/	kinnas : kintaa-n <i>mitten</i>	rinta : rinna-n <i>breast</i>

/ŋk/	/ŋŋ/	kangas : kankaa-n <i>heath</i>	lanka : langa-n <i>thread</i>
/lt/	/ll/	allas : altaa-n <i>basin</i>	valta : valla-n <i>power</i>
/rt/	/rr/	harras : hartaa-n <i>pious</i>	parta : parra-n <i>beard</i>

There is a fair number of systematic exceptions to consonant gradation in Finnish, including foreign vocabulary and slang (e.g. *rööki* : *rööki-n* cigarette-GEN ‘cigarette (coll.)’) and many given names (*Roope* : *Roope-n* ‘Robert’; note *äidi-n* ‘a mother’s’ but *Äiti-n* ‘Mum’s’). Analogy appears to be at work in weak grades like *anno-i-n* give-PST-1SG ‘I gave’ (cf. *anna-n* give-PRS.1SG ‘I give’), but more complex paradigmatic pressures may be divined in forms such as the parallel PART.PL forms with weak-grade: *kaupunge-i-ta* /kaũpuŋŋeĩta/, versus strong-grade: *kaupunke-j-a* /kaũpuŋŋeja/ city-PL-PART ‘cities’. Possessive suffixes, i.e. person suffixes on nouns, regularly fail to trigger gradation despite their syllable-closing phonotactics, e.g. *kieli+oppi-mme^x* language+learning-1PL ‘our grammar’; compare verb *opi-mme^x* learn-NONPST.1PL ‘we learn’, with homophonous stem. There is some dialectal variation in the realization of glottal stop and related phenomena (including gradation), but gradation is general before the suffix of the singular imperative and the connegative, e.g. *ota-[k] kahvi-a!* take-IMP coffee-PART ‘have some coffee!’ with geminated /kk/ and gradated /t/, compare strong grade /tt/ (and concomitant non-geminate k) in *hän otta-a kahvi-n* s/he take-3SG coffee-GEN/ACC ‘s/he’ll have a coffee’. We use x-superscript in this chapter as a cover symbol for the effects of glottal management occurring in such contexts; for details see Ogden (2001).

A closer look at some of the phonetic detail reveals a clear complementary distribution of what are called, in a mild misnomer, ‘quantitative’ and ‘qualitative’ gradation. ‘Quantitative’ gradation never entails changes in consonant quality. Rather, it involves the alternation of long stops (which are intervocalically [p̄p̄ t̄t̄ k̄k̄]—but between a liquid, nasal, or high vowel and any following vowel [p̄ t̄ k̄])—with their short analogues [p̄ t̄ k̄]). Thus in the contrasting singular nominative and genitive forms *pappi* : *papi-n* [pāp̄pi : pāpin] clergyman : clergyman-GEN and *opas* : *oppaa-n* [ōpas : ōp̄pa:n] guide(book) : guidebook-GEN the quantitatively alternating consonantisms are unchangingly bilabial stops, and the length of the stoppage is determined by phonological and morphological features of the following syllable.

‘Qualitative’ gradation, conversely, never involves changes in distinctive quantity. Rather, it involves alternations among differing consonants—including zero. So for example we have short /p/ alternating with short /v/ ([p̄] : [v̄]) in *tapa* : *tava-n* manner : manner-GEN and in *varvas* : *varpaa-n* toe : toe-GEN in environments parallel to those cited above. Short /k/ retains its brevity in all of its various qualitative alternants (other than zero). Compare the forms in Table 1.12.

Table 1.12. Gradation of a short /k/.

	‘pause’	‘magic’	‘tip, top’	‘fishing rod’	‘foot’	‘pig’
	k̄ : ũ	k̄ : ī	k̄ : ī	k̄ : ŋ̄	k̄ : Ø	k̄ : Ø
NOM.SG	taũko	taĩka	kãrki	oŋki	jal̄ka	sika
GEN.SG	taũo-n	taĩa-n	kãrie-n	oŋje-n	jal̄Øa-n	siØa-n

The very brief glide filling the intervocalic gap in *sian* [sīan], genitive of *sika* ‘pig’, is shorter than that of *sijan* ‘place GEN’ [sījan]. For more on quantity in Finnish and on its interaction with gradation see Fromm (1982, 39–59) and Karlsson (1982, 52–163).

Consequently, one may reckon with a core inventory of thirteen consonant phonemes for Finnish. In sharp contrast, Hungarian, which has voiced obstruents and both dental/palatal and hissing/hushing pairs, distinguishes twenty-three consonants (Table 1.13), nearly all of which enjoy wide distribution in the word and in texts. Minimal and especially subminimal pairs abound, e.g. *faggat* [fɒg:gɒt] interrogate.PRS.3SG.P : *fagott* [fɒgɒt:] ‘bassoon’.

Table 1.13. Hungarian consonants

		labial	dental/ alveolar	palatal	velar	glottal
nasal		m	n	ɲ		
stop	-vd	p	t	c	k	
	+vd	b	d	ɟ	g	
fric	-vd	f	s	ʃ		h
	+vd	v	z	ʒ		
affric	-vd		ts̄	tʃ̄		
	+vd		dz̄	dʒ̄		
glide				j		

Comments on Table 1.13: The ‘labials’ /f v/ are labiodentals. Note especially the rich coronal zone: Here the nasals (*n* : *ɲ*) and the stops (*t* : *c*, *d* : *ɟ*) are clearly apicodental vs laminopalatal, the latter often with delayed release. But sibilants and their affricates are a special category, as their description cannot rely solely on location in terms of the active and passive articulators (1.2 above). For Uralic languages, we would prefer to adopt the widely accepted view that as the tongue retracts from [s] toward [ʃ], the acoustic impression moves from hissing toward hushing (*sifflant* vs *chuintant*); and there are kinds of [s] which are further retracted yet without being terribly hushing, since retraction is not the only distinctive feature of a hushing quality (others include position of the tongue tip, the locus of primary articulatory channel, presence and degree of lip-rounding, presence or absence of sulcalization).

The Hungarian voiceless and voiced palatal stops /c ɟ/ and affricates / ts̄ tʃ̄ dz̄ dʒ̄/ may be arrayed as in Table 1.14 so as to summarize their relative frequencies and peculiarities of distribution (Austerlitz 1950, 37).

Table 1.14. Coronal stops vs affricates in Hungarian

	normal		abnormal	
frequent	ɟ	tʃ̄		ts̄
infrequent	c		dʒ̄	dz̄

For a detailed exploration of the phonology of Hungarian see now Siptár and Törkenczy (2000).

As many of the Finnish forms cited above illustrate, consonant quantity is often distinctive; this is true particularly of Finnic and Saamic, where consonant gradation operates (see below at 1.2.4). In Hungarian, length is distinctive between vowels (most often at morpheme

boundaries) and even prepausally (*sok* ‘many’ : *sokk* ‘shock’) and at various other morpheme boundaries, even consonant-adjacent. An example of the latter is orthographic *szánt* representing both [sa:nt] sleigh.ACC and [san:t] plough.PRES.3SG (Tálos 2007, 866). Such quantitative distinctions are a well-known mainstay of Saamic (e.g. Skolt, 7.2) and Finnic, e.g. longer vs shorter [k] in North Estonian NOM.SG : GEN.SG of ‘branch’, *oksa* : *oksa* (cf. Ereht 2003, 27).

The voice correlation in Hungarian is pervasive and participates in gradient rather than neutralizing assimilatory processes (Jansen and Toft 2002, 40). It operates for the most part from right to left, as in *vak+bél* blind+gut [ˈvɒgbe:l] ‘appendix’, *üveg+fúvó* [ˈyvæk.fu:vo:] ‘glass-blower’. In the imperative *öltözz fél* ‘get dressed!’ the orthography spells out (with <zz>) the underlying final long voiced sibilant of the verb form; in speech this is both degeminated and devoiced ([ˈœltœsˈfɛl]), contrast *félöltözik* [ˈfɛlœltœzik] ‘s/he gets dressed’ and subjunctive and jussive *félöltözzék* [ˈfɛlœltœzze:k] ‘(so) that s/he might get dressed’, *öltözzék fél* [ˈœltœzze:kˈfɛl] ‘let him/her get dressed’.

Various kinds of voice assimilation are attested in all Uralic languages (that have voice), with the richest sets of assimilatory rules operating in those languages with the largest inventory of distinctively voiced consonants and assimilation-sensitive contexts. For example, Udmurt standard *peresʹ* ‘old’ when suffixed with the comparative index |*gem* yields a voiced cluster with [zʲ|g] (Csúcs 1990, 31), and Letka Komi voiced dental /d/ plus voiceless hushing /ʃ/ in the superlative construction *med fan* ‘most beautiful’ yields a geminate voiceless hushing affricate: [ˈmɛtʃʃan] (Fokos-Fuchs 1959, volume 2, 982). Both left-to-right and right-to-left voice assimilation has been recorded for most languages that exploit voice, e.g. compounding Erzya *ved* ‘water’ with *kev* ‘stone’ gives *ved*+ [g]ev ‘millstone’ but suffixing NOM.PL -*t* to *pango* ‘mushroom’ gives *pank-t* (Keresztes 1990, 34–35; cf. Moksha *jotambačk* ‘while going’ < *jotam* ‘going’ + *pačk* ‘through’ 11.3.2).

Among Uralic languages that have developed a fully-fledged correlation of voice the most prominent are by and large those which voiced and/or fricativized (or even elided) intervocalic singleton stops and simplified geminate stops. These are most obviously Hungarian and Permic (4.5, 4.6.1); distinctively voiced obstruents play a decidedly smaller role in Mordvin or Mari. Helimski (1995) noticed that this kind of ‘lenition’ or ‘weakening’ of intervocalic obstruents is in near complementary distribution, across the family, with consonant gradation, and he concluded that at least two kinds of gradation, rhythmic and syllabic, probably date from the protolanguage. A tantalizing additional variable, namely the role of the nasals, remains relatively unexplored, cf. the lexically determined neutralization of oral and nasal stops in northern Selkup as in *šūriṗ* ‘wild animal’ (where <ṗ> = /p/ or /m/, thus *šūriṗ* ~ *šūrim*) (see Helimski 1998, 554–555; Kuznecova et al. 1980, 141–144; and compare Nganasan nunation 17.3.2).

Various kinds of consonant gradation—involving extensive, indeed pervasive, and systematic quantitative and qualitative alternations of consonants and consonant clusters—are present not only in Finnish but also in most of Finnic and Saamic as well as in Nganasan (see for example Iva 2010; also 7.3 and 10.3.2). One form of gradation, having to do with syllable (or mora) counts, may be illustrated by Finnish forms such as the partitives singular of even-syllable vs odd-syllable stems, with weak grade -*a* after bisyllabic *pato* ‘dam’ (PART.SG *pato-a*) vs. consonant variant or strong grade -*ta* after monosyllabic *suo* ‘bog’ (*suo-ta*) and optionally after trisyllabic *oikea* ‘correct’ (*oikea-(t)a*). Parallel sets of gradation are readily found in Nganasan, e.g. the infinitive suffix with weak grade -*dʹi* after bisyllabic *sʹetə-* ‘to load (a vehicle) PFV’

(*s'etə-d'i*) vs. strong grade *-si* after trisyllabic *s'etə/tə-* load|IPFV ‘to load (a vehicle) IPFV’ (*s'etə/tə-si*). We think it clearest to follow Helimski (1995) in calling this kind of gradation *rhythmic gradation*, and to reserve the term *syllabic gradation* for alternations associated with the structure (rather than the position) of the syllable, as in Finnish strong-grade *t* of *pato* ‘dam’ vs. weak-grade *d* in the onset of the closed syllable of *pado-t* dam-PL ‘dams’, or in Nganasan strong-grade *h* (< PU *p) of *ɲuhu* ‘mitten’ vs. weak-grade *b* of *ɲubu-ʔ* mitten-PL ‘mittens’. When phonetic material originally closing the syllable has been ‘lost’ such gradation often lives on as a grammatical index, as in Votic weak *z* vs strong *s* in *lahzõõ* GEN.SG : *lahsi* NOM.SG ‘child’ cited above (see Table 10.7), or Skolt Saami *kää'pp* : *kää'v* ‘hole, pit’ (Tables 7.19 and 7.20).

Even South Saami, usually classified as lacking gradation, in fact lacks only *syllabic* gradation; rhythmic gradation lives on in the form of the diagnostic differences between the various declensions or conjugations, i.e. the use of mono- and trisyllabic vs. bi- and quadrisyllabic variants of morphemes in descriptions of inflectional classes, e.g. the comparative suffix *-be* on bisyllabic stems (*gamtebe* ‘broader’) but *-bpoe* on trisyllabic stems (*buajtahkåbpoe* ‘fatter’) (see Tables 6.15a and 6.15b).

If not conclusive it is highly suggestive that gradation has flourished in precisely those Uralic languages which have best preserved stem (or word-rhythm) bisyllabicity and which concomitantly have resisted developing an independent correlation of voice in their consonantisms (Helimski 1995, Table 3).

1.3. Morphology

1.3.1. Agglutination and its opposites: kinds of fusion present in Uralic languages

Preliminary note: since nominative case, singular number, absolute (i.e. non-possessed) declension, indicative/declarative mood, and present (or non-past) tense are usually or always encoded with zero in Uralic languages, we have not always spelled these categories out in our segmented glosses. For example, Finnish *annan* ‘I give’ can be segmented simply as *anna-n* with the matching gloss give-1SG, leaving unstated the fact that this form is indicative, declarative, and non-past; similarly Hungarian *erdõben* ‘in a forest’ can be segmented simply as *erdõ-ben* and glossed forest-INE, leaving unstated the fact that this form is singular (or non-plural) and absolute.

Most Uralic languages are traditionally called *agglutinative*, and this typological label is a comfortable fit in the sense that it seems to comport well with the broader macro-‘Altaic’ morphological type that stretches across northern Eurasia, for these languages—from Turkic through Mongolic, Tungusic and Koreanic and Japonic in the far East—have traditionally been classified as agglutinating, as well (see Austerlitz 1970; Janhunen 2009; Nikolaeva 2020, 109; for attempts at connecting ‘Altaic’ with Uralic genealogically see chapters 4 and 5 of this volume).

As a classificatory term *agglutinative* is an unfortunate simplification. It conflates several distinct kinds of deviation from its various opposites, which we may collect conveniently under the term *fusional*. In an ideal agglutinative language, [1] grammatical categories would be expressed by unique, [2] dedicated morphemes separated by clear morpheme boundaries and

[3] with no variation in form not attributable to phonology. Uralic languages often fail to meet these ideals, as we will see below.

It would be more accurate to speak of most of Uralic morphology, both derivational and inflectional, as *concatenative* (i.e. *linear*), and specifically *suffixal*, but with substantial amounts, in many languages, of various kinds of fusional features (Plank 1999; Plungian 2001; Arkadiev 2020). Fusional features, in turn, are usefully subdivided into four different kinds, namely (a) cumulation (and its close relative, fuzzy morpheme boundaries), (b) suffixal suppletion (and its close relative, non-transparent allomorphy), (c) discontinuous morphemes (and other disruptions to linear simplicity), and (d) various patterns of syncretism in declension and conjugation. We look now very briefly at each of these in turn.

1.3.1.1. Cumulation

Worldwide cumulation seems most typical of person and number, and in their bound forms Uralic languages all do usually express these two categories jointly, for example plural and second person are fused in Finnish suffix *-mme*^x and Hungarian *-Unk* (where *U = u/ü*), as in *ystävä-mme*^x and *barát-unk*, both friend-1PL ‘our friend’. (A rare exception may be found in Udmurt negative constructions, cf. *u-d mini* NEG-2SG go.CNG vs *u-d min-e(le)* NEG-2PL go-PL.CNG in Table 13.12).

Cumulation of number and case, however, is also cross-linguistically common; for example, relatively fusional Latin expresses the two notions of plurality and dative cumulatively for many nouns, viz. with a single suffix *-īs*, in *puer-īs* boy-DAT.PL ‘to boys’. In contrast, Finnish and Hungarian express the two notions with suffixes added separately, in linear fashion: -PL-DAT, as in Finnish *poj-i-lle*^x, Hungarian *fű-k-nak*, and Tungusic Evenki *bejet-ker-du* ‘to boys’ (Nedjalkov 1997, 84). Uralic languages can show cumulation here, however, as arguably in the Finnish nominative plural *poja-t* ‘the boys’ in which the suffix *-t* indicates both plurality and case (and definiteness). The Tundra Nenets accusative plural, whose reconstruction looks like an uninflected adjectival base rather than a case form, furnishes an egregious combination of case/number cumulation with highly complex formation (Salminen 1997, *passim*; cf. Janhunen 1986, 140).

Cumulative exponence also occurs in many Uralic inflectional verb forms. Suffixes expressing features of both subject and object are often difficult or unwieldy to segment, for example Hungarian 1SG.F2 *-lAk* as in *szeret-Ø-lek* love-NPST-1SG.F2 ‘I love you’ is sometimes interpreted as segmentable into *-lA-k*, i.e. -2SG.O-1SG.A, but in the context of the Hungarian verb inflectional paradigm this is at the expense of setting up a unique set of argument indexes in a unique order. Similarly, analysing Moksha *-samak* of *kel’g-samak* love-2SG>1SG ‘you love me’ as *-sa-m-ak* (with suffix sequence -NPAST-1SG.O-2SG.A) requires that we set up a nonpast suffix *-sa-* which occurs only in transitive forms with non-second-person objects (Table 11.7a). Even Mari, whose conjugation has no object indexing, exhibits fusion in forms like *tol̄ət̄e* ‘they came’, in which subject person and number (3PL) and tense (PST1) are both welded to the root *tol-* ‘to come’ (the nonpast 3PL is *tolət*); one is free, of course, to set up a rule by which an abstract past-tense -J- palatalizes a verb-stem-final *l* or *n* (see Table 12.19).

Cumulation is often mimicked by less-than-clearcut morpheme boundaries in inflectional and derivational sequences, a state of affairs that is pretty much the norm in many Uralic languages, particularly in verb inflection. For an example one can look to the traditional analysis of Mari verb inflection into two putatively distinct ‘conjugations’ which have virtually identical person

suffixes, differing primarily in their method of forming their first past tense. Most of the remaining differences between the two sets of forms reside in the nature of the vowel occurring between stem, tense/modality suffix, and person suffix, and might easily be accounted for with morphophonemic rules (e.g. *tol-at* come-2SG vs. *ile-t* live-2SG, rather like their Latin translations *uenī-s* vs. *vīv-is*; consider the forms set out at 12.10.1 and Table 12.18). Another example may be found in the positing of general and special finite stems for Tundra Nenets (19.3-4; Salminen 1997, 100ff; Nikolaeva 2014, 26–27; Janhunen 2020, 378–379). We return to the notion of conjugation below at 1.4.3.

1.3.1.2. Suppletion

For suppletion, we follow Mel'čuk (1994) in calling *suppletive* any two forms that show a semantic relation of maximal regularity while simultaneously showing minimal formal regularity: the exponents of a given morphological (sub)category differ, but this difference cannot be ascribed to the phonology (Plank 1999, 282–283). This more general definition of suppletion widens the field to include not only the kinds of relation seen in pairs of roots such as English *good* vs. *bett|er* or Latin *fer-imus* carry.PRS-1PL ‘we carry’ vs. *tul-imus* carry.PRF-1PL ‘we carried’, but also the relation between affix-pairs such as Latin perfect suffix *-u-* vs. *-s-* in *plac-u-ī* be.pleasing-PERF-1SG ‘I pleased’ vs. *dik-s-ī* say-PRF-1SG ‘I said’. Finnish nominal plural *-t*, used in nominatives like *nuore-t* young-PL and some genitives such as *nuor-t-en* young-PL-GEN, is suppletive to *-i-*, used in other genitives plural and in other plural oblique case forms such as GEN.PL *nuor-i-en*, ALL.PL *nuor-i-lla*. The difference between indicative present East Mari forms such as *tolef* ‘s/he comes’ and *ila* ‘s/he lives’ may similarly be seen as a suppletive one, since there is no tool in Mari phonology to account for the difference between the putative third person suffixes *-ef* and *-a* of these forms (12.10.1 and Table 12.18).

Suffix suppletion is widespread across the Uralic family, occurring in the major paradigms of most inflectable words, but its close cousin, non-transparent allomorphy, is also attested. The Nganasan aspect-pair *s'etā-d'i*: *s'etā|tā-si* cited above to illustrate rhythmic gradation may also be used as an example of suffix suppletion: the imperfective stem *s'etā|tā-* takes the imperfective aorist suffix *-NTU/A₁-*, viz. *s'etā|tā-ti-∅* load|IPFV-AOR-3SG ‘s/he was loading’, while its perfective counterpart *s'etā-* takes the perfective aorist suffix *-ʔā-*, viz. *s'eti-ʔā-∅* load-AOR-3SG.

We may further illustrate some of the complications arising from both suffix suppletion and non-transparent allomorphy with forms from the inflectional paradigm of the Tundra Nenets word for ‘tent’. This is *m'aʔ* (or *m'aʔ*, also written <*myaq*>) in its absolute (non-person-marked), nominative singular form, and this is the form normally used for citation purposes. The dative of this root is formed with suffix *-tāʔ*, yielding *mya-tʔʔ* tent-DAT, but in the corresponding third-person form (‘to his/her tent’) the dative suffix is *-kʔ-*, viz. *mya-kʔ-nta*. The allomorphy seen in the third-person dative forms *mya-kʔ-nta* tent-DAT-3SG and *ya-xʔ-nta* place-DAT-3SG can be accounted for by means of morphophonemics, as can the nasal initial of the absolute dative of this stem (*ya-nʔʔ*), if we allow for an alternation *t~n* in certain morphemes (cf. Salminen 1997, 68). The stop-initial variant *-kʔ-* might be explained as postconsonantal, the consonant in question surfacing as glottal stop in final position (*m'aʔ/myaq*) and identifiable as a dental obstruent in forms like the nominative plural, formed with the single-consonant suffix *-ʔ* and therefore requiring epenthesis (Salminen 1997, 61), viz. *myadā-ʔ* tent-PL. (A Latin analogue would be epenthetic *i* in *vīvis* ‘you live’, cited above at 1.3.1.1.)

1.3.1.3. Discontinuous suffixation

Discontinuous suffixation occurs rarely in Uralic languages; its analysis is not always uncontroversial. For example, in the possessed plural forms of Hungarian consonant-final nouns the expression of person seems to involve discontinuity, e.g. *barát-<a>i<m>* friend-⟨POSS⟩PL⟨1SG⟩ ‘my friends’ (cf. Melcsuk 1968; Rebrus 2000, 773–777; Spencer 2012). In Mari the 1SG index *-em-* seems to break up the simultaneous converb *-ǰəla*, as in *koftə-<ǰ>em<la>* walk-⟨CVB.SIM⟩1SG⟨CVB.SIM⟩ ‘as I was walking’ (12.15.9). In the noun inflection of Nganasan, a pluralizer *-i-* seems to interrupt certain local cases, as in the SG/PL locatives of ‘knife’ (*kümaa*), namely *kümaa-tənu/kümaa-<t>i<nü>* (Table 17.5), and in Tundra Nenets the SG/PL forms of *tú* [tu:] ‘fire’ seem to have their locative suffix similarly interrupted by pluralizer *-ʔ-*: *tu:-xuna/tu:-<xu>ʔ<na>* (Table 19.5).

In Tundra Nenets verb inflection, tense may be encoded at two points in the suffix chain. One set of tense suffixes is made up of the (suppletive) future morphemes *-ŋko-* and *-t-nə-*, their selection being determined by the stem (19.4; Salminen 1997, 54–55). These morphemes are of aspectual and derivational origin, and thus it is not surprising that their position is immediately next to the stem, where mood/modality, aspectual, and evidential morphemes are usually positioned in Uralic languages and elsewhere; examples are *me-t^o-ə-d^om* hold-FUT-GFS-1SG ‘I will hold’ and *xet^o-ŋku-d^om* tell-FUT.GFS-1SG ‘I will tell’. But there is also a preterite tense suffix (with relatively more remote past reference than the neutral aorist), and its position is at the end of the chain, after any subject and object indexes, as in *yarkə^o-wə-sy^o* catch-GFS-1SG>S-PRT ‘I caught it (the reindeer)’. The two tense suffixes may co-occur in the same chain, building a future-in-the-past form, as in the inferential *xada-ŋko-wiə-∅-sy^o* kill-FUT-INFR-3SG-PRT ‘apparently he was about to kill’ (Nikolaeva 2014, 93).

1.3.1.4. Syncretism

One way to think about syncretism is as part of an implicational hierarchy in which ‘the choices available in one grammatical system vary, depending on the choice made in another system’ (Aikhenvald and Dixon 1998, 61). For example, person inflection can force syncretism of case in Komi, where illative *-ə* and inessive *-in* syncretize as *-a-* in forms such as *ki-a-s* hand-INE/ILL-3SG ‘in(to) his/her hand’. The absolute declension of both Mordvin languages shows full syncretism of number in all oblique cases (i.e. case implicates number), thus Erzya NOM.SG *kudo* : NOM.PL *kudo-t* but *kudo-so* house-INE ‘in a house/in houses’. A more extensive syncretism is seen in Finnish *käte-ni* ‘my hand(s)’, which expresses not only the nominative and genitive-accusative singular (instead of **käte-n-ni*) but also the nominative-accusative plural (instead of **käte-t-ni*). In Hungarian, 1SG and 2SG suffixation can bring about (in certain registers) syncretism of nominative with accusative, as in *keresem a kulcsom* ‘I’m looking for my key(s)’, with *kulcs-om* key-1SG, contrast the explicitly accusative *kulcs-oma-t* key-1SG-ACC.

Syncretism of argument indexing suffixes on the Tundra Nenets verb leads to a set of forms from which it is impossible to factor out simpler parameters. For example, 1PL subjects are indexed by *-waq* for ‘subjective’ forms (i.e. those noncommittal with regard to object number) as well as for forms that index singular objects, and *-naq* indexes non-singular objects but also ‘reflexives’ (a subclass of intransitive); but 3SG subjects are indexed by suffixes cross-cutting these two forms, so that *-da* indexes objects of any number, while *-∅* is ‘subjective’ and *-q* is ‘reflexive’. Table 1.15 sets out the argument indexing suffixes.

Table 1.15. Argument indexing suffixes of the Tundra Nenets verb (indicative mood; adapted from Salminen 1997, 103). Underscore signals syncretism with a non-adjacent suffix ('reflexive').

	subject person	O neutral	O SG	O DU/PL	'REFL'
s u b j e c t	1SG	- <i>d°m</i>	- <i>w°</i>	- <i>n°</i>	- <i>wəq</i>
	2SG	- <u><i>n°</i></u>	- <i>r°</i>	- <i>d°</i>	- <i>n°</i>
	1DU	- <u><i>nyih</i></u>	- <i>myih</i>	- <i>nyih</i>	- <i>nyih</i>
	2DU	- <u><i>dyih</i></u>	- <i>ryih</i>	- <i>dyih</i>	- <i>dyih</i>
	3DU	- <u><i>x°h</i></u>	- <i>dyih</i>	- <i>dyih</i>	- <i>x°h</i>
	3SG	-∅	- <i>da</i>	- <i>da</i>	- <i>q</i>
	3PL	- <i>q</i>	- <i>doh</i>	- <i>doh</i>	- <i>d°q</i>
	2PL	- <u><i>daq</i></u>	- <i>raq</i>	- <i>daq</i>	- <i>daq</i>
	1PL	- <i>waq</i>	- <i>waq</i>	- <i>naq</i>	- <i>naq</i>

It will have become clear from the examples cited thus far that Uralic inflection does not involve particularly high degrees of synthesis (Comrie 1989, 42–49). Finnish and Hungarian verbs conform to a two-suffix inflectional template consisting of one tense-or-mood suffix followed by one argument-indexing suffix, so that word forms involving more than three morphemes necessarily contain derivational suffixes, as well, such as Hungarian *mëg&mëg+ráz/kod-ott-∅* VP.PFV&VP.PFV+shake|ITER-PST-3SG.P 's/he/it shook from time to time', with argument reducing suffix |kOd- (cf. root *ráz-* 'to shake TR'), and aspectual reduplication of the verb particle (in this case *mëg*) (cf. Kiefer 2016, 3323-3324). Similar are Finnish verb forms with Aktionsart suffixes semelfactive (*|ht-*) and frequentative (*|el-*) as in *käännä|ht|el-i-n* turn|SEM|FREQ-PST-1SG 'I kept tossing and turning' (cf. Austerlitz 1968, 1344; 1982). The main deviation from this norm is to be found in Samoyedic languages, where tense, mood/modality, and other categories are usually best analysed as belonging to inflection, but even here overlong strings are not usual, since most categories are in complementary distribution. We may cite Nganasan *čenti|ri|gə|bsiðə-ŋ* be.ready|CAUS|ITER|NEC-2SG 'you should prepare TR', with suffixes for valence change (causative *|ri*), aktionsart (iterative *|gə*), and modality (necessitative *|bsiðə*) preceding the lone subject index (Wagner-Nagy 2019, 257).

The point of these last sections (1.3.1-1.3.1.4) has been to illustrate ways in which Uralic languages have many morphological features that defy the agglutinative model, but this does not imply that an agglutinating model is inappropriate in an attempt at analysis of Uralic language forms (Lounsbury 1953). Difficulties in segmentation are circumvented if we set up such an agglutinating analogue and then segment that. For example, the connections between the Tundra Nenets NOM.SG, DAT.SG, and third person dative forms of the noun for 'tent' cited above (*m'iaʔ*, *m'ia-tʔ*, *m'ia-k²-nta*) are rendered more explicit if we spell them out somewhat abstractly as 'latent' (or 'deep') sequences such as MYAT, MYAT- \tilde{T} EH, MYAT-XE-NTA (in which \tilde{T} denotes a morphophonemic oral/nasal alternation, cf. Salminen 1997, 68). What is then required is to posit and evaluate rules that might connect the two layers in the

(morpho)phonology (see Fought 2000, 186). On agglutination as a process giving rise to new affixes see Haspelmath (1995); Ackermann and Malouf (2017) investigate an overlapping set of questions in several Uralic languages, approaching from a different angle.

1.3.2. Grammatical categories

1.3.2.1. Noun morphology

Here we look briefly at some of the variety of noun morphology: the encoding of number, person, case, and predestination; various kinds of definiteness are discussed in detail in chapter 22.

Before looking at the inflection of nouns we must first eliminate a potentially confusing factor, namely the verb vs. nominal distinction. Perhaps all Uralic languages have at least one root which can take both declensional (most usually case) and conjugational (most usually tense) suffixes, that is: a root which can inflect both as a noun and as a verb. Not very numerous, such roots typically fall into the meteorological category, and usually inflect for third person singular only: Hungarian *fagy(-)* ‘(there is) a frost’ and Finnish *tuule(-)* ‘wind (blows)’ are textbook examples, but other semantic areas are also represented, e.g. the Hungarian hunting term *les(-)* ‘to lie in wait for (game)/hide (VERB), cover (NOUN)’. Hajdú (1970) listed some two dozen Tundra Nenets roots of this kind, not all of them quite so semantically restricted; crucially, he distinguished them clearly and correctly from the open class of nominals used as copula complements, which take verb ‘subjective’ inflections, as in *nyudyako-dəm-cy*^o ‘young-1SG-PST ‘I was young’ (Tereščenko 1965, 224).

Uralic nouns lack inflectional classes, on the whole, both in the syntactic sense that there are no genders (that is, no agreement classes such as we find in Indo-European or Semitic) and, at the morphological end of the scale, there is very little of what we might call nominal inflection classes (in the sense that nouns in any given Uralic language may be said to inflect according to the same, language-specific pattern). The great variety seen in the inflection of these languages stems from morphophonemic alternations which vary from the relatively simple (e.g. Komi, Khanty, Hungarian) to the relatively complex (e.g. Saami, Estonian, Enets) mainly in line with the degree to which consonant gradation, vowel harmony, and other sandhi rules operate in the language.

Some of the putative inflectional complexity in some of these languages is a by-product of the analysis. An example is Tauli (1973, 41–58), which lists 67 ways in which the genitive singular may be seen as being formed in Standard Estonian. This kind of complexity can be greatly reduced if one employs a word-and-paradigm approach with rules of referral (e.g. Blevins 2008; cf. Salminen 1997 for Tundra Nenets), or if, conversely, one uses a traditional item-and-process method with deep segments, prosodies, and scrupulous attention to segmenting and distribution.

Most Uralic languages have two to four grammatical cases flagged by distinct suffixes (with NOM.SG always zero). They also have a range of spatial/local and adverbial cases; these usually distinguish between stasis and motion on the one hand, and between motion toward, away from, or by way of a reference point. All case flagging is carried out primarily by means of suffixes (rather than prefixes) but these are always supplemented by a range of adpositions (normally postpositions but with a small number of prepositions in some languages). Uralic

adpositions form a special class of nominals, with defective and/or deviant case paradigms. They have no independent existence, occurring always with a host noun or pronoun (whether independent or in suffix form), and are therefore probably better seen as a kind of relational noun (for adpositions and relational nouns through a cross-linguistic lens see Hagège 2010, with many Uralic examples). Some examples of Uralic adpositions are: Surgut Khanty *pūt ləypij-i* pot interior-ABL ‘from inside a pot’ (16.17), Finnish *kirja-n pää-llä* book-GEN top-ADE, Komi *nebg vil-in* book top-INE (14.9.2) both ‘on top of a book’, Hungarian *a fal melle-tt* ART wall next.to-LOC ‘next to the wall’, *melle-tte-m* next.to-LOC-1SG ‘next to me’. The occurrence vs omissibility of pronominals in adpositional constructions is a particularly complex area (16.9.1); for Khanty see now Schön (2017, 102–103).

In the lexicon adpositions can occur as singletons (e.g. Hungarian *óta* ‘since’, as in *halál-a óta* death-3SG since ‘(ever) since his/her death’; this postposition also cannot host person suffixes) but more commonly occur in pairs, triads, or quartets differentiated by motion/stasis and directionality or path, mimicking thereby the array of suffixes proper (above). For at least some of them, this differentiation is achieved by case endings which are of restricted distribution: they are either relics of older paradigms (like Hungarian locative *-tt*, occurring in postpositions like *ala-tt* ‘located (stationary) below’ and *föl-ött* ‘located (stationary) above’) or they are used in functions different from their more recent (and now ordinary) ones, such as Finnish *-nA*, an essive in the present-day language but originally a locative, and still functioning as a locative when used with postpositions and in fossilised expressions, e.g. Finnish *talo-n taka-na* house-GEN behind-ESS/LOC ‘in the space behind the house’, *koto-na* home-ESS/LOC ‘at home’ below (on essives and related matters in Uralic languages see de Groot 2017). Since the differences between suffixes, relational nouns and compounds are gradient, it is not surprising that in many Uralic languages there are also borderline cases of flagging on NPs, cf. Table 12.8 for Mari.

Reference for all of the oldest reconstructable relational nouns is spatial (‘above’, ‘below’, ‘behind’, ‘in front of’ being among the oldest; see Jalava and Grünthal 2020). Non-spatial meanings are either metaphoric extensions of these, or expressed by newer forms like Hungarian *után* ‘after’ (etymologically *ut-á-n* way-3SG-LOC ‘in its path/wake’). There does not appear to be a correlation between the number of case suffixes and the number of adpositions in a given Uralic language; for example, Schön (2017, 178) reckons that Surgut Khanty, with nine cases, has nearly as many postpositions, 66, as does Kazym Khanty, with 68 postpositions but only three cases (18.17). Postpositions whose meanings call for two hosts coordinate them with a double dual construction in Surgut (Jugan) Khanty *ker-γən pəsən-γən kūt-i* stove-DU table-DU between-ABL (Schön 2017, 210–211; see also 15.4.1 for Mansi); contrast the more SAE constructions of Hungarian or Finnish, using conjunction *és* or *ja* ‘and’, as in Hungarian *a kályha és az asztal köz-ül* ART stove and ART table between-ABL, or Finnish *uuni-n ja pöydä-n väli-llä* stove-GEN and table-GEN between-ABL ‘from (the space) between the stove and the table’. Note also that ‘between you and the world’ can be translated into Finnish with coordinated genitives (*sinu-n ja maailma-n väli-ssä* 1SG-GEN and world-GEN between-INE ‘between you and the world’) but in Hungarian with person indexing on the relational noun (*közte-d és a világ köz-ött* between-2SG and ART world between-LOC).

Case suffixes combine with plural and, in a few languages, dual suffixes to form inflectional chains of varying transparency. Again, form and function often deviate from a simple agglutinative model. For example, Finnish has plural *-i-* between stem and case suffixes except in the nominative/accusative, where the single plural nominative suffix *-t* signals case, number, and definiteness simultaneously (*talo-i-ssa* house-PL-INE ‘in (the) houses’ but *talo-t* house-PL ‘the houses’). In Hungarian, plural suffix *-k(A)-* is used unless there is a person suffix (which

may be zero, for 3SG) to its right, in which case it is *-i-*, e.g. *háza-k-on* house-PL-SUPE ‘on houses’ but *háza-i-m-on* house-PL-1SG-SUPE ‘on my houses’, *háza-i-Ø-n* house-PL-3SG-SUPE ‘on his/her houses’. See further on suffixal suppletion below at 1.3.1.2.

Person suffixes on nouns are less widespread, on the whole, at the western end of the family, and are usually reported as occurring mainly with kinship terms for most Saamic and Finnic languages. Case suffixes can also combine with person suffixes, and the order of suffixes varies from language to language and even within languages; Mari (Luutonen 1997) and Permian (Bartens 2000, 109–118) offer particularly complex examples. (For the role of case flagging in syntax, see below at 3.2.) In all but the westernmost languages indexing of person is also invariably used with adpositions, for example Hungarian *mög-ötte-m*, Finnish *taka-na-ni* both behind-LOC-1SG ‘behind me’, Nganasan *bəntu-nu-nə* above-LOC-1SG ‘over me’ (Wagner-Nagy 2019, 279), Komi *me pitʃk-in* 1SG inside-INE ‘in me’ (14.19).

As mentioned above at 1.1.2.3, an explicitly definite declension has evolved in the Mordvin languages: this paradigm is in complementary distribution with both plain (‘absolute’) and possessive paradigms. Note Erzya inessive absolute *valma-so* window-INE ‘in (a) window(s)’, and inessive 1SG *valma-so-n* window-INE-1SG ‘in my window(s)’, both of which are indifferent regarding the number of the base, and compare inessive definite singular *valma-so-ńt* window-INE-DEF.SG ‘in the window’ vs plural *valma-tńe-se* window-DEF.PL-INE ‘in the windows’ (and note, in passing, the reverse order of case and definiteness suffixes in these two forms.) Although relatively recent, the makeup and deployment of the definite declensions of Erzya and Moksha differ considerably.

Closely intertwined with definiteness is the similarly scalar variable of animacy. Kangasmaa-Minn (1998, with literature) highlighted this in connection with Mari. Baker (1985, 148, citing Gulyayev 1960, 153–154) gives the example *ńeb-i-Ø lavka-įs/tedsa-lįs ruźjo* buy-PST-1SG shop-ELA/acquaintance-ABL gun ‘I bought a gun in a shop/from an acquaintance’ with elative *-įs* on inanimate *lavka* ‘shop’ but ablative *-lįs* on animate *tedsa* ‘acquaintance’. Lotz (1939, 76, 81) used the feature [+/- human] to distinguish different kinds of causality flagged by the Hungarian elative (‘moralisch’: *irigység-ből* jealousy-ELA ‘out of jealousy’) vs the ablative (‘materiell’: *bor-tól* wine-ABL ‘on account of wine’). Animacy will also crop up elsewhere as a contributing factor, as in the Hungarian human-indexing adverbial of constructions such as *sok-an van-nak* many-ADV exist-3PL.P ‘there are many people’ or the Finnish indefinite (human) subject of *silta-Ø tuhot-tiin* bridge-NOM destroy-IDF.PST ‘the bridge was destroyed’.

To give some small idea of the typological range of nominal inflection that is involved, we glance here at representative noun paradigms in South Saami and Komi Permyak. Compare the cells of the singular and plural paradigms of a South Saami noun, *gåetie* ‘dwelling’ in Table 1.16 (adapted from 6.9a):

Table 1.16. South Saami *gåetie* ‘dwelling’ (adapted from Table 6.9a):

	SG	PL
NOM	<i>gåetie</i>	<i>gåetie-h</i>
ACC	<i>gåetie-m</i>	<i>gået-i-de/gööt-i-de</i>
GEN	<i>gåetie-n</i>	<i>gåetiej/gööti</i>
ILL	<i>gåata-n</i>	<i>gået-i-de/gööt-i-de</i>
INE	<i>gåete-sne</i>	<i>gået-i-ne/gööt-i-ne</i>
ELA	<i>gåete-ste</i>	<i>gåetij-ste/göötij-ste</i>
COM	<i>gået-ine/gööt-ine</i>	<i>gåetiej.gujmie/gööti.gujmie</i>

ESS	gäet-i-ne/gööt-i-ne
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Of all the case forms in this paradigm, only those of the elative consist of a readily segmentable sequence of a number suffix (*-i-* encoding PL vs. zero, i.e. its absence, encoding SG) plus case suffix (*-ste*). In every other pair of SG vs. PL case forms, the differences involve completely different case suffixes (e.g., accusative *-m* in the singular, but *-de* in the plural; inessive *-sne* in the singular, but *-ne* in the plural), different morphemic structure (comitative SG vs. PL), or both (illative SG vs. PL).

With this we may contrast a paradigm from a language whose noun morphology is typologically at the other extreme, that of (Komi-)Permyak. Table 1.16 sets out the absolute singular forms of ‘hand’ in Komi Permyak (forms adapted from Austerlitz 1964)

Table 1.16. Absolute singular paradigm of *ki* ‘hand’ in Komi Permyak (forms adapted from Austerlitz 1964 and Baker 1985, 66)

Case	Form SG
NOM	ki
GEN	ki-vən
ABL	ki-viś
ALL	ki-və
ACC	ki, mort-əs
INST	ki-ən
COM	ki-kət
CAR	ki-təg
CFV	ki-śa (‘preclusive’)
LOC	ki-in
ELA	ki-iś
ILL	ki-ə
APR	ki-vań
EGR	ki-śań
PROS	ki-ət
TERM	ki-əź
SUPE	ki-(v)vin
SUBL	ki-(v)və
DATL	ki-(v)viś
SUPET	ki-(v)vəź
PERL	ki-(v)vət

This paradigm has nearly three times as many cases as the Saamic one, but with the exception of an optional *-əs* accusative used with animates (like *mort-əs* man-ACC) every case form is built in a straightforward manner, without umlaut, vowel shortening, or inflectional subtypes determined by syllable-count as in South Saami (6.4.1)

Furthermore, whereas South Saami has an almost completely independent set of plural forms, in Permyak there is a clearly segmentable plural suffix *-jez* whose initial *j* copies any stem-final consonant to its left, thus *ib-bez* field-PL ‘fields’, *zon-nez* son-PL ‘sons’, and all plural case forms are built to this with simple concatenation, e.g. *zon-nez-və* son-PL-ALL ‘to (the) sons’. For more on Permyak varieties see Baker (1985, 55–58).

The Permyak (and in fact all of the Permian) noun paradigm becomes only slightly more complex when person ('possessive') suffixes are involved. There is, for example, syncretism of inessive and illative in possessed forms: *kerku-in/-9* house-INE/-ILL but *kerku-a-s* house-INE/ILL-3SG 'in(to) his/her house', and the suffix order is dependent of case: we have case+person in some cases (as in INE/ILL *kerku-a-s* and *kerku-9ddzi-s* house-SUPET-3SG 'to as far as the top of his/her house') but person+case in others, as in *zon-is-və* son-3SG-ALL 'to his/her son'.

Nouns typically have no more than three slots occupied by inflectional suffixes, and such configurations are textually probably relatively rare. Examples are Udmurt *lud-jos-m-es* field-PL-1PL-ACC 'our fields (ACC)' and its morpheme-for-morpheme Hungarian translation *meze-i-nke-t*. The first inflectional slot, closest to the nominal stem, is almost invariably reserved for a suffix indicating number, and all Uralic languages exploit zero at this point in the paradigm to encode singular, or, perhaps more accurately, general (undifferentiated) number.

Languages of the Finnic branch show a fairly clear paradigm structure, with *-t* encoding plural in the nominative and accusative, and *-i-* in other cases, although there are instances of overlap and deviation from this pattern. Close to identical patterns crop up in Samoyedic, and the obvious inference is that something dating from the protolanguage has survived at the geographic extremes.

At the western and eastern extremes of the family, Uralic languages use a genitive case form to flag the dependent, usually 'possessive', modifier of the head of an NP. The form of this genitive may still contain a clear descendent of the original PU *-n, as in Finnish *naise-n nimi* woman-GEN name 'the woman's name', Selkup *-n* (or *-t ~ -n*, 20.5.1.2). The Enets languages no longer distinguish genitive as a core case on nouns (18.3.1.3), but its viability is manifest in Nganasan (17.4.1) and Tundra and Forest Nenets (19.4; see also Burkova 2022, 682–683).

The Ugric languages lack a genitive, and instead use a 'pertensive' suffix on the possessum, to use Dixon's term (Dixon 2010b, 268), to index the person of the possessor. Person and number of the possessor and number of the possessum are thus encoded by this suffix (or suffix-chain) jointly. In syntagms Khanty and Mansi use the pertensive alone, e.g. Eastern Mansi *kom ləl-φ* man soul-3SG 'the man's soul' (Kulonen 2007, 37); in Surgut Khanty, NP-internal possessive syntax is sensitive to clause structure (16.10). Hungarian uses the same construction as that of Mansi and Khanty (*a lány haj-a* ART girl hair-3SG 'the girl's hair'), but the possessor may also be co-flagged by the dative; compare the roughly synonymous *a lány-nak a haj-a* ART girl-DAT ART hair-3SG. This latter construction allows for the possessive NP to be inverted, discontinuous, or both, permitting a range of topic/focus and other discourse functions, e.g. *a haj-a a lány-nak* 'the girl's hair'; *a lány-nak befonják a haj-át* 'they plait the girl's hair', *még a nev-ét se tudta a lány-nak* yet ART name-3SG-ACC NEG know-PAST-3SG.F ART girl-DAT 's/he didn't even know the girl's name'.

Third-person (and often second-person) suffixes are also used to indicate 'definiteness' (see chapter 22). The management of definiteness underlies the contrastive emphasis of a Tundra Nenets sentence-pair (1a) and (1b) cited by Salminen (1993, 262; segmentation and glossing adapted, English translation maintained):

(1a) Nenets (Salminen 1993, 262)

pi-da ηətye-ə-da
 3SG-3SG await-PRS-3SG>S
 ‘He is waiting for him’

(1b) syi^t-ta ηətye-ə-∅
 3SG-3SG
 ‘He is waiting for him.’ await-PRS-3SG

Here the contrastive focus on the subject in (1a) is conveyed partly by the overt third-person free pronoun *pi*, which only occurs with a coreferential person suffix (here *-da*), and partly by means of the subject-and-object-indexing suffix on the verb, 3SG>S *-da*; indexing the number of the object correlates with the topicality (knownness) of the object. Conversely, in (1b) it is the object which is contrastively emphasized, and this is achieved partly by the overt oblique third-person free pronoun *syi^t* (in suppletion with nominative *pi*) which only occurs with coreferential person suffix (here *-ta*), and partly by means of the object-neutral index for third person subject, suffix *-∅*. (The Tundra Nenets pronoun *syi^t* may be reconstructed as originating in PU *ket ‘image, face’, mentioned above at 1.1.2.6. in connection with Hungarian and Mansi pronouns.)

A (*pre*)*destinative* category on nouns (also called *benefactive*, cf. Siegl 2013, 378) is attested as a kind of noun inflection with goal-oriented (or future-oriented) meanings. This category is reflected as the translative case of western languages Finnish and Mordvin (and even the Mari relative: Ylikoski 2017) and as the ‘predestinative’ of northern Samoyedic languages although its productivity and functioning here is not uncontroversial (cf. Salminen 2014, 292), where a clear distinction is drawn between Tundra Nenets versus Enets and Nganasan use of this suffix.

A Tundra Nenets sentence and its Finnish translation (2) may serve to illustrate not only form-and-function parallels between the Tundra Nenets predestinative and the Finnish translative but also OVX vs VOX constituent order, deployments of genitive and accusative, and measure-NP structures (on which see Schäfer 2018):

(2)

TN	хэн°	<i>xalya-m</i>	<i>ηeryo-h</i>	<i>me-d°-naq</i>	<i>sinta-°-waq</i>	OXV
	sled	fish-ACC	autumn-GEN	food-DEST-OBL.1PL	store-AOR-1PL(>SG)	
	store-PST-1PL	sled ful-ACC	fish-PART	autumn-GEN	food-TRANS-1PL	
Fi	<i>varastoi-∅-mme^x</i>	<i>ree llise-n</i>	<i>kala-a</i>	<i>syksy-n</i>	<i>ravinno-kse-mme^x</i>	VOX

‘We stored a sledful of fish to be used as food for us for the autumn’ (source: Tereščenko 1965, 573, ‘целую нарту с рыбой мы отложили про запас на осень’ cited by Salminen 2014, 291)

Morphologically **numerals** do not form a distinct subclass in Uralic languages, so they may be mentioned briefly here. We can gain some small perspective on the variety of formations shown by numerals by looking at the decades.

We begin with the Udmurt, Komi, Hungarian and Mansi forms. In Hungarian the decades 40–90 are all low-vowel stems formed with a derivational suffix |*vAn(A)* meaning ‘10’, e.g. accusative *öt|vene-t* five|DER-ACC ‘fifty (ACC)’, *hat|vana-t* six|DER-ACC ‘sixty (ACC)’. The ancestor of this morpheme extended furthest in Hungarian (40–90) and least in Udmurt, where it appears—perhaps—in ‘30’ (see Table 1.17).

Table 1.17. Names for decades in Udmurt, Komi, Hungarian, and Mansi

	Udmurt	Komi	Hungarian	Sosva Mansi
10	das	das	tíz/tize-	löw
20	kiz ^j	kiz ^j	húsz/husza-	xūs
30	kwamin	komin	harm inc	wāt
40	niΛ+don	neΛa min	nëgy ven(e-)	nāli man
50	vic+ton	veti min	öt ven(e-)	āt pan
60	kwac+ton	kvajti min	hat van(a-)	xōt pan
70	sizim+don	εizim+das	het ven(e-)	sāt+löw
80	camis+ton	kəkjamis+das	nyolc van(a-)	n ^j ol+sāt
90	ukmis+ton	əkmis+das	kilenc ven(e-)	ōntəl+sāt
100	εu	εo	száz(a-)	sāt

Honti (1993b, 159) reckoned with a FU root *mVnV ‘ten’ (= *moni, 3.7) which was demoted to a derivational suffix in Permic, Mansi and Hungarian. The element *mis* in the words for ‘8’ and ‘9’ in Permic looks suspiciously similar. The Iranian loan meaning ‘10’, borrowed separately into Permic and Hungarian, forms the Komi decades 70–90, while in Udmurt 40–90 are formed with *t/don*, most probably identical with Komi/Udmurt *don/dun* ‘price, worth’ and connected with squirrel-skin currency (Tepljashina 1976, 158; Majtinskaja 1979, 175-6)

To the west of Permic, as well, languages form their decades with their word for ‘10’. In Mari, the word for ‘10’, *lu* (< *luka, cf. 3.4, 3.7, and cf. Mansi root *löw*) came to function as a derivational suffix, and thus now participates in vowel harmony, e.g. East Mari *kollo* ‘twenty’ and *nəl|le* ‘forty’ (West Mari *kok|lə*, *nəl|lə*). The Mordvin languages build decades most often with their word for ‘10’, *kemeni*, added to base cardinals, sometimes with what looks like a genitive joining the two parts, e.g. Erzya *n^jil^je-n^j+gemen^j* four-GEN+ten ‘forty’, but usually simply compounded, as in Moksha *n^jil^j+gemen^j* ‘forty’, or *ved^j+gemen^j* ‘fifty’ in both languages (cf. 11.3.2). Finnic is quite uniform in its formation of the decades, using case forms of ‘10’, *kymmen(e-)* or its cognates, after the cardinal, as in any quantitative noun phrase, e.g. South Estonian (Võro) *kats^s+kümmend* : *katōkümmne* GEN ‘twenty’ (Table 9.13). Saamic patterns here with Mari in uniformly using its descendant of the *luka word, namely *lokē (e.g. South Saami *likkie*, Skolt Saami *lääi(j)*).

In Samoyedic most numerals were replaced with words from an unknown substrate language, e.g. ‘five’ may be reconstructed as PSam **səmpə* plus derivative suffixes (Janhunen 1977, 133) and ‘six’ as PSam **məktə(j)t* (Janhunen 1977, 85); the Nganasan reflexes are *səŋhəl’an̄kə* and *məty?* (*mətydə-?* six-GEN) and North Selkup has *sompila*, *muktit*. Yazva Komi has replaced most of its numerals with Russian lexis. The origin of the Mansi word for ‘30’ is unknown.

1.3.2.2. Adjectives

From a morphological perspective, nouns and adjectives show only slight differentiation in most Uralic languages. Hungarian is thus exceptional inasmuch as most back-vocalic adjectives epenthesize *a* and not *o* in plurals such as in *vörös-ek* red-PL (*vörös-ök* is a noun: ‘Reds’), and *gyors* ‘rapid’ seems to differentiate in parallel fashion, e.g. adverbial vs noun superessive *gyors|an* quick|DER ‘quickly’ : *gyors-on* quick-SUPE ‘on an express (train)’. (Speakers who distinguish two short non-high unrounded vowels, *e* vs *ë*, will make a parallel distinction.) There is a tradition in Finnish grammar-writing (e.g. Karlsson 2018, 68, cf. 78) according to which polysyllabic adjective stems favour *t*-less partitives plural, e.g. *etano-i-ta* snail-PL-PART but *ihan-i-a* lovely-PL-PART, but variants abound, and the reverse distribution

occurs even within the standard language, e.g. *etano-j-a* and the archaic/affective *ihano-i-ta*. In (Komi-)Permyak, adjectives in apposition are reported to take an accusative suffix *-ə*, as in *Safa vaj-i-s kniga vič-ə* PN bring-PST-3SG book new-ACC ‘Sasha brought (me) a book, a new one’ (Csúcs 2005, 208); for Permic adjective plural forms see on copula clauses (1.4.4).

In some of the more eastern languages a goodly proportion of the word forms which from a European perspective are semantically adjective-like in fact show verb morphology. Jalava (2013, 55) reports that three of out of four Dixonian core semantic adjective types (dimension, age, value) three are encoded chiefly by nominals in Tundra Nenets, e.g. *pyircya* ‘tall’, *nyew^əxi^ə* ‘old (INANIMATE)’, *nyeney^ə* ‘genuine’. But stative verbs are frequent as well, both lexically and textually, in these and in other semantic areas such as colour, e.g. *tərka-* ‘to be narrow’, *nyaya-* ‘to be red’.

Saamic languages have special attributive forms of adjectives, i.e. forms used within the noun phrase rather than as copula complements; their formation shows considerable irregularity (see 6.6, 7.4.4; and Rießler 2016, 41–42).

1.3.2.3. Verb morphology

Verb morphology across the family is far too complex a topic for anything less than a monograph. We focus here on a few morphological details in a few paradigms in the hope of evoking some idea of the dimensions and proportions of the questions involved; see below at 1.4.3 and 1.4.6 for the interplay of verb morphology with syntax and the organization of discourse.

All Uralic languages distinguish at least one past and one non-past morphological tense; Permic and Samoyedic also have future-tense forms. Imperative mood is universal, but Samoyedic languages can also encode interrogatives as part of their inflectional paradigm. A range of modalities (usually also called ‘moods’) form parts of the inflectional paradigms of verbs in all branches; by far the largest systems are attested in northern Samoyedic.

Verb forms that obligatorily include person suffixes have traditionally been called *finite*, although the term causes difficulties because its limits are difficult to discern. The deployment of person in Uralic languages is of the ‘Latin’ type (Cysouw 2009, 107), but the languages at the geographical extremes (Saamic and Samoyedic) have preserved encoding of dual subjects.

In several languages, third-person singular subject forms are clearly analysable with a zero suffix, as in Hungarian *néz-ett-∅* behold-PST-3SG.P ‘s/he saw’, Tavda Mansi *ji-s-∅* come-PST-3SG ‘s/he came’; in languages with zero suffixation to indicate tense, the result may be a chain of zeroes, e.g. non-past *-∅-* in Hungarian *néz-∅-∅* behold-NPST-3SG.P ‘s/he beholds’ and past-tense *-∅-* in Surgut Khanty *mən-∅-∅* go-PST-3SG ‘s/he went’.

However, the person-indexing members of verb paradigms are not always clearly segmentable. For example, it is probable that what is segmented today as a third-person suffix *-ə* in Komi (14.8.1.1) is the result of the coalescence of a non-past suffix, presumably **-k-*, with the stem-final vowel. Put another way, *muna : munan : munə* 1SG : 2SG : 3SG could point to ‘loss’ of final 1SG **-m* alongside persistence of 2SG **-n* and 3SG *-∅*, with **VkV > a* (*ə* at word-end) and **Vi > i* (Table 1.18).

Table 1.18. Reconstruction of subparadigm of Komi singular verb forms

nonpast	past
---------	------

1SG	*munV-kV-m	> mun-a	*munV-i-m	> mun-i
2SG	*munV-kV-n	> mun-a-n	*munV-i-n	> mun-i-n
3SG	*munV-kV-∅	> mun-ə	*munV-i-∅	> mun-i

In Udmurt the picture became more complex, because [1] a derivational suffix */(V)l-* gave rise to sets of (slightly) different forms and thus a separate ‘conjugation’, and [2] a derivational suffix *|isʲk-* came to function as an inflectional one in locutor persons, indexing present tense (for a synchronic account, see the generative model of Csúcs 1987).

In many languages, person suffixation is intimately and intricately involved in the transitivity of the clause; see below at 3.3.

1.3.2.4. Nonfinite verb forms

Of nonfinite verb forms we have space enough here only to say that they are used in a great variety of ways, building non-finite relative clauses (for which see chapter 21) as well as complement and supporting clauses. They are inflected like nouns, but with a reduced set of case suffixes; only certain nonfinites can take person suffixes, and only under certain circumstances. A simple example is cited by Nikolaeva (2007, 2), wherein a North Khanty participle *-(ə)m* takes a 1SG suffix in a supporting clause ‘after I built the house’ but not in a relative clause (‘the house I built’), where the subject indexing goes on the head noun instead.

It is not often remarked upon, but casual/colloquial Finnish abounds in such nonfinite constructions, e.g. *millase-s miljöö-s sä oikeen tahto-si-t kuv-i-i su-st ote/tta/va(n)* what.kind-INE milieu-INE 2SG actually desire-COND-2SG picture-PL-PART 2SG-ELA take|PASS|REF ‘in what sort of milieu would you like pictures to be taken of you?’, and *mu-n ava/a/m-i-ssa* 1SG-GEN open|VBLZ|PTCP.A-PL-INE ‘in the ones that I opened’.

1.4. Syntax

1.4.1. Clause-level syntax: alignment, negation, questions, commands

Here and throughout this book we adopt Dixon’s abbreviations S, A, and O as convenient shorthand to label core constituents in a clause (ITR subject, TR subject, object), and letter E (‘extension’) for any necessary additional argument. Writing these in subscript we will then have English *Bob_A opened [the door]_O*, *[The door]_S opened*, and *We_A sent Magda_E [a parcel]_O*. Taken together, the first two of these clauses demonstrate that the verb *open* in English is an ambitransitive of the type S=O, since the argument *door* has S function when the clause is intransitive, but O function when the clause is transitive (see 1.4.3 below for ambitransitivity in Uralic).

All Uralic languages show NOM-ACC alignment; easternmost Khanty has a construction which has been called *ergative*, but which in fact flags intransitive and transitive subjects identically, with the locative case (16.17). Languages with differential argument flagging use different case suffixes on both objects and subjects across a range of circumstances; differential flagging of objects has dominated the literature, with different inflection of subjects being discussed in other contexts such as topic shift and other matters to do with definiteness (see chapter 22).

Finnish, for example, flags direct object nouns with NOM, GEN (= ACC), or PART depending on variables including polarity, aspect, and presence/absence of a ‘canonical’ transitive subject, while pronouns have dedicated accusative forms (see Kiparsky 2001). Case flagging of Finnish

intransitive subjects (but not copula subjects) depends on quantitative and referential (in)definiteness, and quantitateness can include part/whole distinction, e.g. PART subject *venet-tä näky-i jo nieme-n takaa* boat-PART be.visible-PST.3SG already promontory-GEN from.behind '(part of the) boat was visible from behind the promontory' (Siro 1957). One of the functions of such determiner-like elements as Komi 3SG/2SG *-is/-id* and Erzya definite declension forms is to help to disambiguate core syntax, especially where discourse or animacy hierarchies are otherwise insufficient, as in VOA constituent order of Erzya *sa-siz'e at'a-n'-t' bojar-os'* overtake-NPAST.3SG>3SG old.man-ACC-DEF boyar-NOM.SG.DEF 'the boyar caught up with the old man' (Keresztes 1990, 81).

For standard negation, Hungarian lies toward the simpler end of the range of Uralic construction types: it uses uninflecting particles placed before the finite main verb, *nēm/sēm* for indicative (including conditionals), and *nē/sē* for imperative and optatives (3a-3e).

(3a) Nem mēn-te-m be.	NEG go-PST-1SG .PVP	'I didn't go in.'
(3b) Nem men-né-k be.	NEG go-COND-1SG .PVP	'I wouldn't go in.'
(3c) Nē mēn-je-n be!	NEG go-IMP-3SG.P VP	'May s/he not go in!'
(3d) Nē mēn-j-∅ be!	NEG go-IMP-2SG.P VP	'Don't (you SG) go in'
(3e) Nē mēn-ne-∅ be!	NEG go-COND-3SG.P VP	'If only s/he wouldn't go in!'

Finnish uses a negative auxiliary: it takes person suffixes, but all other morphology goes on the lexical verb (4a-e).

(4a) E-n men-nyt sisään.	NEG-1SG go-ACT.PTCP.PST in	'I didn't go in.'
(4b) E-n men-isi sisään.	NEG-1SG go-COND-CNG in	'I wouldn't go in.'
(4c) ÄI-köön men-kö sisään!	NEG-IMP.3SG go-IMP.3SG in	'May s/he not go in!'
(4d) Älä mene- ^x sisään!	NEG go-CNG in	'Don't (you SG) go in!'
(4e) Kunpa se e-i men-isi sisään!	if.only it NEG-3SG go-COND-CNG in	'If only it wouldn't go in!'

Compare a Finnish version of 'I wouldn't have been able to prevent it' (5a) with the Hungarian (5b),

(5a) E-n ol-isi voi-nut estä-ä ^x si-tä	NEG-1SG be-COND.CNG be.able-ACT.PST.PTCP prevent-INF 3SG-PART
(5b) Nem akadályoz-hat-ta-m volna még	NEG prevent-POT-PST-1SG .F COND VP

For negation across the family, we now have the surveys of Miestamo et al. (2015) and Simoncsics (2018). Here we limit ourselves to saying only that the negative verb construction is thought to be the original Uralic one: negation is expressed by a verbal auxiliary, while the lexical verb takes a deranked form, i.e. one which is relatively impoverished with regard to the indexing of person or the expression of TAME (= various intersections of tense-aspect-mood-modality-evidentiality). This kind of construction is best preserved in Nganasan. The opposite extreme to Nganasan is that in which no categories are expressed on an 'auxiliary', i.e., negation is expressed by means of an uninflecting 'particle'; this is what has happened in Mansi.

In Mansi, full clausal negation expressed in the affirmative with uninflecting particle *at*, all inflection remaining on the verb (6).

(6) Sosva Mansi (Kálmán 1976b, 138)

at ta pat|ta-s-te
 NEG PTCL fall|TR-PST-3SG>S
 ‘he didn’t kill it (i.e. make it [squirrel] fall [out of tree])’

Contrast Nganasan in example (7) in which both tense/aspect (imperfective aorist *-nti-*) and subject/object indexing (2SG>S *-rə*) are attached to the negative verb, the lexical verb ‘shoot’ (stem *d’itu-*) taking only the suffix of the connegative (*-ʔ*).

(7) Nganasan (Wagner-Nagy 2002, 175)

n’i-nti-rə d’iɖu-ʔ
 NEG-AOR-2SG>S shoot-CNG
 ‘You didn’t shoot it’

In parallel fashion, the Nganasan negative imperative (prohibitive) uses the same suffixes and strategies as the affirmative imperative: it suffixes mood and argument indexes on the negative verb, and puts the lexical verb in the connegative. In example (7) the suffix *-ntə* fuses the categories of mood (imperative) with those of subject and object person (2sg subject, singular object):

(8) Nganasan (Wagner-Nagy 2002, 388)

n’i-ntə ɲanabtu-ʔ, n’i-ntə d’ükə-ʔ
 NEG-IMP.2SG>S forget-CNG NEG-IMP.2SG>S lose-CNG
 ‘don’t forget it, don’t lose it!’

Contrast this with Sygva (also North) Mansi example (9) where the negative imperative is expressed by uninflecting particle *ul*, placed between the verb and its (spatial/aspectual) particle *xot*, and inflectional morphology is suffixed to the lexical verbs (*-əl-* singular object, *-n* second person subject).

(9) Sygva Mansi (Kálmán 1976b, 70)

xot **ul** pēs|t-əl-n *xot* **ul** tār|t-əl-n
 PTCL PROH loose|TR-SG.O-2 PTC PROH free|TR-SG.O-2
 ‘Don’t let him run away, don’t let him free!’

For the formation of **questions** there is no Uralic-wide strategy, but apart from Saamic and Finnic, constituent order is not usually different from that of a declarative clause. **Polar questions** in Hungarian and Finnish are expressed by intonation (the main Hungarian strategy, cf. Kenesei et al. 1998, 431–436) or enclitics accompanied with a change in word order where the finite verb is moved to the beginning of the clause (the main Finnish strategy, as in *tule-t=ko sinä?* come-2SG=Q 2SG ‘are you coming?’). Hungarian also has an enclitic =*ë* which is stylistically neutral for subordinate polar questions (**9a**) whereas Finnish enclitic =*kO* is used on both main-clause and subordinate-clause polar questions (**9b**, **9c**). Main-clause polar questions without =*kO* are current in colloquial Finnish now, as well, e.g. *tuu-t sä?* come-2SG 2SG ‘are you coming?’. The verb-initial word order and a falling intonation curve that starts higher up than in statements show that it is a question. Hungarian main-clause polar questions are most often expressed by means of intonation (**9d**), but the particle strategy also occurs as a higher-style alternative (**9e**).

(9a) Nem tudom, hogy segít=e.
 NEG know-NPST-1SG.F CMPL help.PRS.3SG.P=Q

- (9b) E-n tiedä-^x autta-a=ko se.
 NEG-1SG know-CNG help-PRS.3SG=Q ANAPH

‘I don’t know whether it helps.’

- (9c) Autta-a=ko se?
 help-PRS.3SG=Q ANAPH
 ‘Does it help?’

- (9d) Segít? [rising to falling intonation on last syllable]
 help.PRS.3SG

- (9e) Segít-e? [falling intonation, as in declarative clause]

In northern Samoyedic, suffixes encoding interrogative mood form a part of the verb paradigm and interrogative mood is expressed cumulatively with tense; Nganasan, example, has a full complement of past, aorist, and future interrogative tense-and-mood suffixes (or suffix-chains), e.g. 2SG past *tuj-hu-η*, come-INTER.PST-2SG ‘did you come?’, aorist *tuj-ηu-η* come-INTER.AOR-2SG ‘did you just come?’, and future *tuj-süδəə-η* come-INTER.FUT-2SG ‘will you come?’. To form a negative question both the tense-and-mood suffix (aorist interrogative *-ηU-*) and the 2SG index are attached to the negative auxiliary in *n’i-ηi-η s’arimitə-? tolar-sa* NEG-INTER-2SG be.ashamed-CNG steal-INF ‘aren’t you ashamed to steal?’ (Wagner-Nagy 2002, 204; Tereščenko 1979, 210ff; see also Miestamo 2011).

As for **commands**, it is possible to reconstruct a proto-Uralic suffix for the 2SG imperative (at least in forms which do not index features of the object), namely *-k. Its history in all the languages is not clear in all details. Finnish *tule tänne* (*tule-^x tänne^x*, roughly [‘tulet’tænne?]) ‘come here!’ (Ogden 2001) is straightforward enough, and various glides, fricatives, and assimilations are seen as its descendants in Hungarian, e.g. *várj* [va:rj] ‘wait!’, *varrj* [vɒr:j] ‘sew!’, *nézz* [ne:z:] ‘look!’, *szíts* [si:t:j] ‘stoke!’. This suffix is assumed to have been homophonous with that of the connegative, a member of the verb paradigm occurring in negative constructions which use a negative verb. The two forms, 2SG imperative and connegative, are homophonous today in much of Finnic (11.4.3), Moksha (12.9.2), and Enets (Table 18.25). However in Mari (13.10.1) and Komi (14.8) they are equated with the (more abstract) verb stem. On imperatives and commands in general see now Aikhenvald (2010).

1.4.2. NP syntax: Case flagging, internal concord; syntax of case

It is important to try to distinguish argument flagging (which indicates the syntactic function of an NP in the clause) from argument indexing (which encodes arguments on the verb); it is just as important, in describing Uralic languages, to try to distinguish between systems with differential flagging (like Finnish or Komi) and differential indexing (like Khanty). Some languages, like Erzya and Moksha, have both (see Grünthal 2008).

Here we focus on the flagging of NPs. For all Uralic languages by far the most usual pattern has the head at the end of the NP, where case flags, whether suffixes or postpositions (or both in tandem) are attached, e.g. Finnish *pullo-ssa*, Hungarian *üveg-ben* both bottle-INE ‘in a/the bottle’, Finnish *ove-n pää-llä* door-GEN head-ADE, Hungarian *az ajtó fölött* ART door above.LOC ‘over/above the door’, *a város-on kívül* ART city-SUPE outside ‘outside the city’ (the reverse order also occurs: *kívül a város-on*). As adumbrated at 1.3.2.1 above, case systems vary from the minuscule (Northern Khanty, with three) to the superabundant (varieties of southern

Permyak, with well over twenty). The great size of the Permyak paradigm is patently due to recent incorporation of postpositional constructions into the case system (see Baker 1985, 184; also, with a broader purview, Ylikoski 2016). Hungarian has had a similarly large and relatively recent augmentation to its case system, going even further in having evolved bound proforms for most of its cases, e.g. *róla-m* DEL-1SG ‘about me’ (cf. the delative case forms *Budá-ról* Buda-DEL ‘about Buda’, *Pest-ről* Pest-DEL ‘about Pest’) and *nekë-m* DAT-1SG ‘to me’ (cf. the dative case forms *Péter-nek* Peter-DAT ‘to Peter’, *Pál-nak* Paul-DAT ‘to Paul’). Note also *rajta-m kívül* SUPL-1SG outside, *kívüle-m* outside-1SG both ‘outside of me’.

All Uralic languages use adpositions. South Saami has over one hundred of them (6.18). Spatial relations encoded with case in one language will require a postpositional construction in another: Hungarian and Permyak use case in *föld-ön* earth-SUPE, *mu-^{vv}-a-s* earth-SUPE-INE-3SG, while Tundra Nenets uses a postpositional construction *ya-h nyi-nya* earth-GEN on-LOC ‘on the ground’; on the other hand Tundra Nenets has prolocative case *syexare-w^{na}* road-PROL ‘along the road’ while Hungarian has *az út mentén* ART road along ‘along the road’ and the equivalent Finnish is *tie-tä pitkin* road-PART along. (The Hungarian postposition *mentén* ‘along’ is morphologically *mén|t-é-n* go|NMLZ-3SG-SUPE, and Finnish *pitkin* is an instructive of *pitkä* ‘long’, viz. *pitk-i-n* long-PL-INS).

Uralic adpositions are historically (and often synchronically, as well) nouns denoting spatiotemporal relations such as ‘(space) underneath’ or ‘(time) after’. They often themselves carry case suffixes, usually of an older stratum and now longer productive, like the stative *-tt* and separative *-ul* of Hungarian *a ház mög-ött/mög-ül* ART house behind-STA/behind-SEP ‘at/from (the space) behind the house’.

Finnish ‘behind the house’ is roughly *talon takana* house-GEN behind-ESS/LOC, but this is only a first approximation. In this construction the host noun *talo* ‘house’ is in the genitive, and this is the usual form of postpositional constructions in Uralic languages having a genitive. Hungarian, which lacks a genitive, has *(a) ház mög-ött* (ART) house behind-LOC as an equivalent, with postposition *mögött* following the nominative form of the stem of the host noun. Mansi, Khanty, and the Permic languages, with no genitive or with only a recently coined one, similarly favour their nominative. Unexpectedly, Mari nouns tend not to use their genitive for this, using the nominative instead (although pronouns use the genitive).

In Table 1.19 we provide parallel forms built with a postpositional stem meaning ‘under’.

Table 1.19. Uralic postpositions built with a postpositional stem meaning ‘under’ (adapted from Jalava and Grünthal 2020). Hu = Hungarian, Ng = Nganasan (from Wagner-Nagy 2019, 153), TN = Tundra Nenets

	Finnish	Erzya	East Mari	Komi	Sosva Mansi	Surgut Khanty	Hu	Ng*	TN	Taz Selkup
LOC	al-la	alo	jêmal-nə	ul-in	jöli+pāl-t	yłpi-nə	ala-tt	ŋil ^l ə-nu	ŋil ^ə -na	il-qit/n
LAT	al-le ^x	alo-v	jêma-k	ul-ə	jöli+pāl-n	yłpi-ja	al-á	ŋil ^l ə	ŋilə- ^ŋ	il-ti
ABL	al-ta	al-do	jêma-čən	ul-ie	jöli+pāl-nə	yłpi-ji	al-ól	ŋil ^l ə- ðə	ŋilə-d ^ə	il-qini

PROS, PROL	al-i ^x , al- itse ^x	al-ga		uv-ti				ɲil ^ə - mənu	ɲil ^ə - mna	il-mit/n
TERM				ul-əd̥z						
EGR				uv-ɕaŋ						

In addition to postpositions, a smaller number of prepositions have arisen in Finnic languages. We should distinguish forms which function as prepositions as the norm, e.g. Finnish *ennen* ‘before’ as in *ennen sota-a* before war-PART ‘before the war’ from those occurring as prepositions only in poetic use (Finnish *al-le laineh-i-tten* beneath.ALL wave-PL-GEN.PL ‘to beneath the waves’, prosaically: *aalto-j-en al-le* wave-PL-GEN.PL). *Ennen* seems to occur postpositionally only after the relativizer, e.g. *jo-ta ennen* REL-PART before ‘before which’, and with holidays, *joulu-a ennen* Christmas-PART before ‘before Christmas’ (also *ennen joulu-a*).

Modifiers of the head of an NP normally precede, for example ‘in these four cities’ may be translated as Finnish *nä-i-ssä neljä-ssä kaupunki-ssa* PROX-PL-INE four-INE town-INE and Hungarian *eb-ben a négy város-ban* PROX-INE ART four city-INE, with the inessive suffix (here Finnish *-ssä*, Hungarian *-ban*) attached to the NP-final head in Hungarian. The oblique case triggers case agreement of modifiers in the Finnish example, with the inessive *-ssa* attaching not only to the head but also to the demonstrative and numeral; contrast nominative *neljä kaupunki-a* four town-PART ‘four towns’, in which the numeral is the head. Numerals take zero accusative, as in *hän valloitti-i neljä kaupunki-a* 3SG conquer-PST.3SG four city-PART ‘s/he conquered four cities’. In Hungarian, the presence of a quantifier forces non-plural number throughout the NP, but demonstratives agree with the head in case, here inessive *-ben* (of *eb-ben*) agreeing with *-ban* (of *város-ban*).

A postposition like Finnish *jälkeen* ‘after’ puts the entire phrase into the genitive, e.g. *nä-i-den neljä-n kaupunki-n jälkeen* PROX-PL-PL.GEN four-GEN town-GEN after ‘after these four towns’. Hungarian repeats the postposition: *ez után a négy város után* (PROX after ART four city after) ‘after these four towns’ or, in a higher register, *e négy város után*, with demonstrative *e* and no article.

Postmodifiers of an appositional or afterthought nature, with distinct intonational contours and case agreement, are also fairly common, e.g. Hungarian *bor-t kér-ek, vörös-et* wine-ACC ask-PRS.1SG.P red-ACC ‘some wine, please, red’; Finnish *se osti uude-n auto-n, Volvo-n* 3SG buy.PST.3SG new-GEN car-GEN/ACC PN-GEN/ACC ‘s/he bought a new car, a Volvo’; eastern Mari *kičal-ža kuyə pušəŋ-əm kōryan-əm* look.for-IMP.2PL big tree-ACC hollow-ACC ‘look for a big tree, a hollow one’ (Beke 1938, 433).

For the material flagging of case, see the individual chapters. Here we have room only to say that for full nouns, nominative case is almost always flagged with zero. The two chief exceptions are the lexically and textually frequent Finnic stems in *|se* and *|ise* with irregular nominative forms, e.g. Finnish NOM.SG *hevone-n* ‘horse’, GEN.SG *hevoše-n*, and several of the cardinals, e.g. Finnish NOM.SG *seitsemän* ‘7’, GEN.SG *seitsemä-n* (Fromm 1982, 72-73), and, in the southeastern end of the family, there are Selkup nouns which have final consonants (*p~m, t~n, k~ŋ*, Kuznecova et al 1980, 141–144) which appear only in the nominative, e.g. NOM.SG *parä-k* ‘crowbar’, *parä-i-m-tit* crowbar-PL-ACC-3PL ‘their crowbars ACC’ (Erdélyi 1970, 177). Across the family nominative singular forms are therefore regularly the shortest forms in the paradigm unless epenthetic vowels are invoked by otherwise intolerable clusters (as occasionally in Estonian, Permic, Hungarian, and Ob-Ugric).

We should also make space for a few remarks on the prehistory of the Uralic genitive. The protolanguage is usually reconstructed as having had a genitive in *-n (3.6.1, and 1.1.2.5 above), and this form survives in one form or another in all but the central branches, insofar as it surfaces as *n* and/or triggers syllabic gradation (in susceptible material to its left), as in the nominate/genitive forms of ‘river’, Finnish *joki/joe-n*, Standard Estonian *jõgi/jõe*. We have the genitives singular of ‘road’ and ‘land’ in Finnish *tie-n*, *maa-n*; in Hill Mari *kornə-n*, *mäländä-n*; and in Mordvin, where its palatalized pendant *-nʲ* has become general, in Erzya *ki-nʲ*, *mastoronʲ*. This genitive is also attested throughout Samoyedic, where its successor surfaces as a nasal in compounds like Nganasan *kou-n+d'er* ‘midday’ (= Матор хаинджеръ, collected in the early nineteenth century, Helimski 1997, 137) and in close syntagms like Tundra Nenets *yandyerə* ‘inhabitant’, i.e. *ya-h tyerə* land-GEN contents, orthographically я’ меп.

Aikio (2022, 22) neatly uses GEN as diagnostic for proto-Uralic adjectives as opposed to true nouns: ‘In contrast with adjectives, true nouns prototypically took the genitive case (with the suffix *-n in the singular) when appearing as adnominal (possessor) modifiers’.

The primary use of the genitive in main clauses is NP-internal, to flag a ‘possessor’. But those Uralic languages which do have a genitive will use it not only to mark the possessor in a binominal possessive NP (Finnish *linnu-n silmä*, Tundra Nenets *tyirtya-h syæwʷ*, both bird-GEN eye ‘the/a bird’s eye’) but also to flag the subject in many nonfinite subordinate clauses as in the Finnish RC [*linnu-n syö-mä*] *ruoka* bird-GEN eat-PTCP.A food ‘food eaten by a bird’, and the Nganasan RC [*d’esi-nə d’ebtu.d’üəd’əð*] *s’itəbi* father-GEN.1SG tell.PST.PTCP tale ‘a tale that my father told’ (Wagner-Nagy 2019, 339), even East Mari *šólə-žə-n* younger.brother-3SG-GEN in *erβe-ž-lak-əšt* [*šólə-žə-n kñiγa lut|ma-škə-žə*] *mijat* child-PL-3PL younger.brother-3SG-GEN book read|VN-ILL-3SG go.NONPAST.3PL ‘the children go to where their younger brother is reading’ (Beke 1938, 107). Subject person of such subordinate clauses is most commonly indexed on the nonfinite verb form, as in Finnish [*etsi-mä-ni*] *kirja* seek-PTCP.A-1SG book ‘the book I’m looking for’, Forest Nenets [*manid’ēj-nā-j*] *mjaʔ* behold-PTCP-1DU tent ‘the tent we two are looking at’ (Sammallahti 1974, 92), both behold-PTCP-1PL ‘the tent we (two) are looking at’. However, under certain circumstances the subject can be indexed on the head noun, as in Tundra Nenets *tī xada-qma yal’a-waq* reindeer.ACC.PL kill-PTCP.PFV day-1PL ‘the day we killed the reindeer’ (Nikolaeva 2014, 322). Independent pronouns are also usual, particularly if the subordinate clause’s subject is different from that of the main clause, as in Finnish *hän näk-i* [*häne-n lähte-vän*] 3SG see-PST.3SG s/he-GEN leave-REF ‘he saw her leave’, contrast *hän kuul-i* [*sano-va-nsa*] 3SG hear-PST.3SG say-REF-3SG ‘s/he heard her/himself say’.

An accusative singular in *-m, at least for definite-object nouns, can also be reconstructed for the proto-language, with clear reflexes in Mansi as well as in the peripheral languages (Saamic through Maric and Samoyedic, cf. 3.6.1.)

NP-internal agreement in case and number is the norm in Finnic languages, but it is rare elsewhere in the family, being largely restricted to demonstratives and numerals (Saamic, where different case suffixes are used in e.g. NOM and GEN singular in Lule Saami, viz. NOM.SG *-t* (instead of zero) and GEN.SG *-n* (instead of gradation triggering suffix): *da-t idja-∅* DIST-NOM night-NOM ‘that night’, *da-n ijá-∅* DIST-GEN night-GEN (Ylikoski 2022, 144). Nganasan also deviates inasmuch as there is some core case agreement between adjectives and their heads (e.g. case and number in accusative plural *jaagəə-j koruðə-j* good-PL.ACC house-PL.ACC ‘good houses ACC’ but only number in *jaagəi-ʔ koruðu-tinu* big-GEN.PL house-LOC.PL ‘in big houses’, Wagner-Nagy 2022, 771).

1.4.3 Transitivity, Argument indexing and the notion of ‘conjugation’

A Uralic verb’s valency is usually morphologically explicit; this is because rich derivational machinery produces an abundance of formally differentiated transitive and intransitive verbs in every Uralic language (for morphological details see 1.5.1.1, below).

Ambitransitive verbs are quite rare in both Finnish and Hungarian. So-called ‘agent-preserving’ ambitransitives (S=A, 1.4.1 above) seem to occur in Hungarian; we have for example *szánt* plough.PRS.3SG.P ‘s/he ploughs’, with no object (either overt or indexed), but *szánt-ja* (*a föld-e-t*) plough.PRES-3SG.F (ART field-ACC) ‘s/he ploughs it (the field)’, and similarly intransitive *hajt*(-Ø-Ø) drive(-NPST-3SG.P) ‘s/he drives’ but transitive *hajt-ja az ökr-öt* drive-PRS.3SG.F ‘s/he drives the ox’. Parallel forms and constructions can be cited from Finnish, e.g. *hän aja-a* 3SG drive-PRS.3SG ‘s/he drives (in general)’ with no object, vs *hän aja-a auto-a* 3SG drive-PRS.3SG car-PART ‘she drives a/the car’ (an activity; contrast *hän aja-a auto-n talli-in* 3SG drive-PRS.3SG car-GEN/ACC garage-ILL ‘s/he drives the car into the garage’, an accomplishment). Traditionally S=A verbs of this kind are interpreted as permitting ‘object omission’; however this is an operation which is far from clear. And Hungarian and Finnish are not alone in this behaviour: in Uralic languages that lack object indexing, direct objects are often not stated at all, not even as free pronouns, e.g. Finnish *Ved-i-n nuo piene-t taime-n alu-t ylös ja heit-i-n* Ø_o komposti-in pull-PST-1SG those little-PL seedling-GEN beginning-PL.ACC up and throw-PAST-1SG compost-ILL ‘I pulled up those little starter seedlings and threw (them) on the compost’, East Mari *šəl-žə-m ru-en ta ola-š užal-aš nəŋkaj-en* meat-3SG-ACC cut.up-CVB and town-ILL Ø_o bring-PAST.3SG ‘he cut up the meat and brought it to town’ (Alhoniemi and Saarinen 1983:62). See also 1.4.6 below.

In contrast, S=O (‘patient-preserving’) ambitransitives clearly exist in Finnish and Hungarian, albeit rarely, for example Hungarian *számít* ITR ‘S counts (= is important)’/TR ‘A counts O’, *fest-* ITR ‘S seems’/TR ‘A paints O’, *használ-* ITR ‘S is of use’/TR ‘A uses O’, *tart-* ITR ‘S stays in a place’/TR ‘A keeps O in a place’; and Finnish *laske-* ITR ‘S descends’/TR ‘A lowers O’. And the S=O relation is widespread in northern Samoyedic languages, where the presence vs absence of object indexing together with the availability of reflexive (or Split-S) person suffixes makes such pairs possible: see Table 1.20, which attempts to capture a few Tundra Nenets verbs with the S=O ambitransitive pattern in their larger relation to the lexicon.

Table 1.20. Sample Tundra Nenets valence patterns. Verbs with the S=O ambitransitive pattern are numbered ‘5’ in the leftmost column. Adapted from analysis in Salminen (1998); note that the *ə*-stem ‘alteration’ verb is written here with final *əj-*. Note: R = reflexive

1	ŋamt yo- ‘to sit, be in a seated state’				ITR IPFV	
4	ŋamtə- ‘to sit down’	R PFV				
3	ŋamt ^ə ta- ‘to seat’ <НГАМДТА>			TR PFV		
2	ŋamt ^ə ta mpə- ‘to seat FACT DUR’					TR IPFV
5	tələ- ‘to close TR/ITR’		TR/R PFV			
1	tələj- ‘to be in a closed state’				ITR IPFV	
1	wabt yo- ‘to be in a turned state’				ITR IPFV	
5	wabta- ‘to turn ITR/TR’		TR/R PFV			
2	wabta bə- ‘turn TR IPFV’					TR IPFV
1	wabta ŋkə- ‘to turn ITR IPFV’ (ITER)				ITR IPFV	
1	yempə dyo- ‘to be in a dressed state’				ITR IPFV	
5	yempə s- ‘to dress V (TR/ITR)’		TR/R PFV			

The five kinds of valence-and-aspect profile for Tundra Nenets verbs illustrated in Table 1.20 present a highly simplified picture. Tatevosov has shown that variables of Tundra Nenets conjugation involve finely tuned calibrations of actants (distinguishing, for example, twelve kinds of underived intransitive verbs on the basis of their action matrix, 2016), and that stem-final vowel alternations (such as alternating and non-alternating stem-final ə) correlate with aspect and valence (2022).

Other examples of verbs with the S=O pattern are Erzya *kekš-* ‘to hide’, eastern Mari *šel-* ‘to split’ and Taz Selkup *tott-* ‘to stand’.

In addition to derivational morphology the most widespread valency-decreasing mechanism is found in various kinds of passive constructions, all of which usually entail changes in both index sets and syntactic frame. Zhornik (2018) is a recent survey, with both synchronic and diachronic detail.

Table 1.21 sets out examples illustrating valence-changing morphology in selected Uralic languages.

Table 1.2.1 Transitive and intransitive ‘open’ in selected Uralic languages

	N Saami	Finnish	Erzya	Hill Mari	Komi	Hungaria n	east Mansi
TR	rahpa-	ava-	panž-	pač̣-	voɕ t-	nyí t-	punsə-
ITR	rahpa si-	ava utu-	panž ot-	pač̣ əlt-	voɕ ɛ-	nyí l(-ik)	punsi taytə-

In the set of verbs sampled in Table 1.20, Komi and Hungarian have equipollent pairs, each derived from a neutral theme, while North Saami, Finnish, Erzya, Hill Mari, and Eastern Mansi derive the ITR from the TR root. But this pattern is for verbs that describe *opening*. Verbs that describe *closing* can have different profiles: for ‘to close’ Finnish has *sulke-* TR / *sulke/utu-* ITR (like Finnish ‘open’), but Hungarian has *csuk-* TR / *csuk/ód(-ik)* ITR (with derived intransitive). In fact, each language has its own profile, and samplings ten or twenty times greater than this one reveal that it is more than a matter of simple ‘causativity’; see Bradley et al. (2022) for an enlightening look at valence change and valence orientation in Mordvin, Mari, Udmurt, and Permyak (as well as Chuvash and Tatar).

The term *conjugation* is traditionally applied to inflection classes of verbs which grammarians group together into classes on the basis of shared morphosyntactic properties and their exponents. For Uralic languages the term has had a chequered career: it has been applied to a wide range of criteria, from differences in stem-suffix sandhi through the indexing of valency. A taste of the degree of differences in approaches to verb inflection can be described in Fred Karlsson’s comment (2004, 1339): ‘Elias Lönnrot’s opinion was that there is just one conjugation in Finnish. On the other hand, the maximalistic interpretation presented in *Nykysuomen sanakirja* is that there are 45 verbal inflectional types. An intermediate interpretation in the framework of concrete surface-oriented morphology is that there are 5 basic ways of inflecting verbs.’

The inflection of Uralic verbs varies in two fundamentally different ways across the family. In some languages, variation consists of no more than differences that are the result of

morphonological rules as they apply to subparadigms or even single paradigmatic slots, such as Hungarian PRS.2SG.P *-3l* (= *-ë/ö/ol*, 1.2.3 above) after stem-final s(h)ibilants (as in *főz-öl* cook-2SG.P ‘you cook’) but *-Asz* elsewhere in the present subparadigm (as in *tanít-asz* teach-2SG ‘you teach’). A similar kind of rule will account for the allomorphy of the 3SG suffix across the Finnish paradigm, namely *-Ø* after stem-final *i*, as in the past and conditional forms of ‘sit’ *istu-i-Ø*, *istu-isi-Ø*, but vowel lengthening elsewhere, as in the 3SG present and potential forms of this verb: *istu-Ø-u*, *istu-ne-e*. Allomorphy of person suffixes that is restricted to subparadigms or even single forms is often not so easily predicted, cf. *-Ø* vs. *-təy* in Surgut Khanty (16.4.2) or *-ə* vs. *-as* in Udora Komi (Abondolo 2017), and South Estonian 3SG forms like *elä-s* vs. *and-Ø* (Iva 2010, 83; Laanest 1975, 150–152).

But several Uralic languages have an abundance of person suffixes which cannot be ascribed to this kind of allomorphy (or suffix suppletion), and this has led many investigators to posit different conjugations in many languages across the family. These conjugations are of two basic kinds:

[A] First, there is the Mari/Udmurt kind of ‘conjugation’. Here the inflection of all verbs is traditionally divided into two broad classes, but the differences in the forms of the person suffixes of these classes are generally slight (for the historical background cf. 3.4). For Udmurt, compare the paradigms of *mini-* ‘to go’ and *malpa(l)-* ‘to think’ (13.12). In Mari the differences are a little more pervasive, embracing not only some person suffixes but also the selection of past-tense suffix, but overall the two ‘conjugations’ are quite similar, and most (or all) of the differences can be ascribed to morphophonemics (12.10.1). There is little or no correlation with the syntax, save insofar as valence frames may or may not have been encoded on verbs by way of stem-final vocalism (e.g. 2nd conjugation *kodə-* ‘to leave (TR)’ vs. 1st conjugation *kod-* ‘to remain’, or 2nd conjugation *šinčə-* ‘to be in a seated position’ vs *šinč-* ‘to sit down’, from low- and high-vowel stems, 3.5.4).

[B] The other use of the term *conjugations* is based on differences in index sets (Haspelmath 2013, 215). What we have here are (partly or wholly) different sets of suffixes which differ either [1] according to whether they do or do not index, on transitive verbs, features not only of the subject but also of a direct object; or [2] for intransitive verbs, according to differences in the roles or status of the subject (indexing of subject person/number is obligatory for all affirmative/declarative inflected verb forms in Uralic; no Uralic language indexes features of indirect objects or more peripheral arguments).

We may classify such systems into several subtypes. One is represented by Veps, Karelian, Ingrian, and eastern dialects of Finnish, where there is a full set of suffixes termed *reflexive* because they are used to index subjects and objects that are coreferential (Grünthal 2015, 143–149). The northern Samoyedic languages also have intransitive verbs which take, somewhat unpredictably, distinct index sets; this form of inflection is also traditionally termed *reflexive* (but see below for a complication).

Another kind of system distinguishes forms that index features of a direct object vs forms that do not. This kind is represented most clearly by the Ob-Ugric languages, where ‘objective conjugation’ forms of inflected verbs index their object, while ‘subjective conjugation’ forms do not (and intransitive verbs therefore occur in these latter forms only). In Ob-Ugric languages it is object number that is indexed, albeit with different material: for Surgut Khanty see 16.4.2; for Mansi see 15.4.2. It is striking that the now extinct Tavda (south) Mansi deployed its object-indexing suffixes differently from the rest of Mansi: singular objects were indexed with *-l-* in

non-past and with *-t-* in past-tense forms, but in western, eastern, and northern Mansi it is subject person that determines the distribution of these suppletive suffixes, locuphoric subjects selecting *-l-* while non-locuphoric subjects select *-t-* to index their object (Liimola 1965; Honti 1975).

Hungarian also has index sets, but their meanings differ primarily not in terms of transitivity but rather in ways more akin to an inverse system, with different index sets selected on the basis of the referential status of the arguments (Aikhenvald and Dixon 2011, 73–76) and the nature of the relationship of the two arguments in the scenario (cf. Haspelmath’s notion of *downstream*: 2020, 130). If we think of first, second, and third persons as occupying concentric circles with ego at the centre, we may characterize forms such as *szeret-lek* ‘I love you’, *szeret-ëm* ‘I love him/her/it/you (FORMAL)’ as *centrifugal* as opposed to *centripetal* (‘upstream’) forms such as *szeret-sz* ‘you love me/us’ or simply ‘you love’, *szeret-Ø* ‘s/he loves you/me/us’ or simply: ‘s/he loves’. Centripetal conjugation is used by all intransitive verbs, and on transitive verbs it indexes an object of a lesser person than the subject ($1 < 2 < 3$) or no object at all (thus ‘you see me’ takes the same suffix as ‘you can see’). Centrifugal conjugation of a 1st-person subject must differentiate between second and third person, since these occupy concentric rings (and thus have separate indexes, *-lak* for 1.SG.F2 and *-3m* for 1.SG.F). See Versegly 1818; Abondolo 1988, 88–94; Sherwood 2004; Kubinyi 2007. Unlike Mansi and Khanty, Hungarian must indicate non-singular object number by enclitic pronouns, e.g. *utál-Ø-om õ-ke-t* hate-PRS-1SG.F 3SG-PL-ACC ‘I hate them’ vs. *utál-Ø-om* hate-NPST-1SG.F ‘I hate him/her/it/you (FORMAL)’. Third-person objects (including subordinate clauses) are indexed on the verb in a variety of syntactic and pragmatic contexts (for an early and clear account see de Groot 1989, 12–30).

There are some signs of incipient Split-S indexing in Hungarian’s ‘*-ik* verbs’, as well: most of these are intransitives that select non-past 3SG.P *-ik* instead of canonic *-Ø*, but a few S=O ambitransitives (such as *tör-* ‘to break S=O) use both suffixes, *-Ø* in transitive clauses and *-ik* in intransitive ones. The distinction is consistent only for this paradigm slot, other slots making it at most optionally. For example, the difference between intransitive ‘I drink’ being *isz-Ø-ok* or *isz-Ø-om* as a matter of register or style (see also Sherwood 1994 and 2013). Varieties of Selkup resemble Hungarian most closely here, with the Taz Selkup verb distinctively indexing its objects at most only in 123SG and 3DU; cf. 20.10.

Both Mordvin languages present with yet another kind of divide in their inflectional system, with suffixes that index their subjects only (‘subjective’) and a different set of suffixes that index not only the number but also the person of the object. We have met with these briefly (above) in connection with cumulation and the difficulties of segmentation; here we take a small sample of this kind of inflection with a few Erzya non-past forms of ‘see’, e.g. 1SG *van-a-n*, 1SG>2SG *van-dan*, 1SG>3SG *van-sa*, 2SG>1SG *van-samak*, 3SG>1SG *van-samam*, 3SG>2SG *van-tanzat*. There is considerable syncretism if either the subject or the object person is plural (see Table 1.22, from Austerlitz 1968, 1351), and there is a fair amount of variation not only between but also within Moksha and Erzya (see 11.9.1 and Keresztes 1999).

Table 1.22. Locuphoric object indexing in Erzya

O(BJECT PERSON)			
1SG		2SG	
PLURAL	SINGULAR		PLURAL
	<i>-samak</i>	<i>-tan</i>	
	A: 2SG	A: 1SG	

	-samam A: 3SG	-tanzat
-samiž A: 2,3 SG/PL		-tad'iž A: 1,3 SG/PL

The richest system of index sets is found in the North Samoyedic languages, which distinguish, in addition to subjective vs. objective forms (encoding object number, as in Ob-Ugric), also two kinds of (intransitive) subject indexing, i.e. they have developed the kind of incipient suffixation seen in Hungarian ‘-ik verbs’ more fully, resulting into a fairly distinct paradigm (see Table 1.14).

Table 1.23 presents sample active and reflexive third-person forms in three languages for comparison; the Samoyedic forms are trimorphemic because stem and person suffix are separated by an aspect/tense morpheme.

Table 1.23. Sample active vs reflexive argument index sets for the verb ‘to wash’ in three Uralic languages: Veps, Tundra Nenets, and Nganasan. Veps data are from Zaiceva (2010); Nganasan data are from Wagner-Nagy (2019, 304).

‘wash’ 3SG subject	Veps	Tundra Nenets	Nganasan
active	peze-∅-b	xəl ^ə ta- ^ə -∅	n’oba-ʔa-∅
reflexive	peze-∅-se	xəl ^ə te-y ^ə -q	n’oba-ʔi-ǫə

Table 1.24 presents a synoptic view of various kinds of index-set systems across the family.

Table 1.24: Synoptic view of index set systems in Uralic languages. R = secondary index set for intransitives, including ‘reflexives’ (~ Enets ‘middle’, 18.4.2.2); S/A = basic (or sole) index set; SO, DO, PO = indexing of singular, dual, plural object. The positive scores for Hungarian and Selkup are in brackets because of their rudimentary (incipient, vestigial) qualities.

	R	S/A	SO	DO	PO
Saami		+			
Finnish		+			
Veps	+	+			
nEst		+			
sEst		++			
Mordvin		+	P/N		
Mari		i/ii			
Udmurt		i/ii			
Komi, Permyak		+			
Udora Komi		++			
Hungarian	(+)	+	+		
Mansi		+	+	+	+
Khanty		+	+	+	+
Nganasan	+	+	+	+	+
Enets	+	+	+	+	+

Tundra Nenets	+	+	+	+	+
Selkup		+	(+)		

As mentioned above, South Estonian and Udmurt show superabundant morphology in their 3SG forms; this is signaled with <+> in Table 1.23 while the co-called first and second ‘conjugations’ of Mari and Udmurt are indicated with <i/ii>. The Mordvin languages can distinguish both person and number of objects, symbolized here with <PN>.

Languages which use distinct index sets often have differential argument flagging at their disposal, as well. Compare the grammar in the two clauses of a short stretch of narrative in example (10):

- (10) Tavda (South) Mansi (TŠ) (Kannisto and Liimola 1956, 174–175)
 l’añ kürt porc’axfemkanta-s-t | jikβä jü+tī-s-til porc’axfem-mε
 way along pea find-PST-3PL | woman VP+eat-PST-3SG>S pea-ACC
 ‘on the way, they found a pea; the woman ate the pea’

In this Tavda (south Mansi, now extinct) example, ‘a pea’ has become ‘the pea’: and the knownness of this direct object is encoded partly by differential argument indexing on the verb (3SG>S indexing on *jü+tī-s-til* VP+eat-PST-3SG>S), consistent with a topical object, but also partly by differential object flagging (ACC *-mε* on *porc’axfem-mε* pea-ACC). But transitivity, being a multi-layered clause-level phenomenon, can embrace every variable of the verb and its argument and adjuncts. Every Uralic language that has evolved a true passive most often brings it into play when the clause has the potential for high transitivity, for it then has also the aspectual factors of *telicity* (and direction, aim, as in the verb particles of Hungarian, North Estonian) and *perfectivity* (completion, achievement).

Argument indexing on the verb and differential object flagging on the noun can each play a part in the encoding of such variables. In a folklore text in Pelymka (west Mansi) collected and edited by Matti Liimola in 1902 and 1906, we find a pair of paired parallel sentences involving a magical knife. In the first sentence-pair, the ‘old man’—who has carried an elk onto the scene—tells the knife to cut the elk up, and the knife complies:

- (11a) Pelymka (west) Mansi (Kannisto and Liimola 1956, 128)
 jēpt jextlaxt-∅-n
 knife.VOC cut.up-IMP-2SG
 ‘knife, cut (it) up!’

- (11b) jēpt jextlaxt-s-∅
 knife.NOM cut.up-PST-3SG
 ‘the knife cut (it) up’

He then tells the knife to put the now-butchered elk in the pot to be cooked, and again the knife follows his instruction:

- (11c) jēpt noāl+pⁱēt-∅-n
 knife.VOC VP+put.in.pot-IMP-2SG
 ‘knife, put (it) in the pot!’

- (11d) $\widehat{j\acute{e}pt}$ $\widehat{no\acute{a}l+p^i\acute{e}t-s-t\grave{a}}$
 knife.NOM VP+put.in.pot-PST-3SG>S
 ‘the knife put it in the pot’

In (11d) directionality and telicity are reflected in the verb particle *noāl*, expressive (at the micro level, in the house) of motion toward the fire or into the cooking-pot, and these spatial/aspectual features comport with the greater transitivity of this clause compared with that of its parallel in (11b); the verb is accordingly indexed for its direct object. The imperative clauses, as elsewhere in Uralic, score lower on the transitivity scale (for Pelymka and other west Mansi see Eichinger 2017, and see Honti 1988 for the larger Ob-Ugric context).

We may close this section on the interrelatedness of aspect/tense vs mood and derivation vs inflection with examples from the extremes of the family. Finnish conditional *-isi-* as in *meni-si-n* go-COND-1SG ‘I would go’ developed from a suffix **-ŋci-* (Korhonen 1981, 254), equivalent to the Saamic ‘potential’ (*mana-ža-n* go-POT-1SG ‘I might go’); but there was already a derivational suffix **|ŋci-* that formed momentaneous-diminutive verbs like Finnish *vetä|ise-* ‘to give a tug’ (from root *vetä-* ‘pull, draw’), and conditional forms of such derived stems thus have the suffix twice, once in derivational and once in inflectional function: *vetä|isi-si-n* pull|MOM-COND-1SG ‘I would give (it) a tug’. At the other end of the family Nganasan innovated an imperfective aorist suffix *-NTU/A₁-* (Wagner-Nagy 2019, 224) from a durative-continuative derivational suffix *|NTĚ-* (Wagner-Nagy 2019, 532); as with the Finnic suffix-pair, these two Nganasan suffixes continue to function alongside one another, e.g. *ŋəðə|tə-tu* see|IPFV-AOR.3SG ‘s/he can see’ (Wagner-Nagy 2019, 194). The imperfectivizer *|NTĚ* also builds future-tense forms (Wagner-Nagy 2019, 237); it survives in Saamic, Moksha, and Hungarian as a verb-deriving suffix forming imperfectives and frequentatives, and in Tavda Mansi was used to encode durative presents (Honti 1975, 52).

One final note on aspect and valence in the Uralic context perhaps bears stating explicitly. It often seems helpful to try to distinguish *lexical aspect*, an inherent and immutable property of a root (as in Nganasan) from *derived aspect*, which alters a root’s aspect by means of the addition of a derivational suffix. This latter, broader kind of aspect includes the various kinds of action-types (*Aktionsarten*) such as durative-continuous or frequentative-iterative-multiobjective versus momentaneous-punctual or semelfactive, and all of these run a short way parallel with *derived valency*, which also arises when derivational suffixes are added. But valency seems to be more complex than this in Uralic languages, and in some languages passive formations seem rather derivational while in others they are clearly part of the inflectional paradigm.

1.4.4. Copula clauses and comparative constructions

In Uralic languages copula clauses (often filed under *nominal predication* or *verbless clauses* (Dixon 2010b, 159–188) present far too many different kinds of variable to be discussed under one hierarchized heading. In any given Uralic language the copula paradigm will generally consist of at least two forms, of which one may be zero, e.g. Hungarian first-person categorizational *költő_{cc} vagy-ok* poet be-1SG ‘I am a poet’ but *költő_{cc} poet* \emptyset ‘s/he is a poet’. Hungarian uses zero for non-locuphoric persons in the non-past indicative, and the irregular and suppletive verb *val-/löv-* ‘be’ elsewhere, as in *költő_{cc} vol-ta-m* poet be-PST-1SG ‘I was a poet’ and *hogy költő_{cc} le-gye-k* CMPL poet be(come)-SBJV-1SG ‘that I might be a poet’. The copula complement takes number the same as the copula subject: *éhēs-ek_{cc} vagy-unk* hungry-

PL be-1PL 'we are hungry' and *éhës-ek_{CC}* hungry-PL Ø 'They are hungry'. Finnish, which uses verb *ole-* 'to be' in all kinds of copula clause, patterns with most of Finnic and Saamic in this regard. The Permic languages stand out for having a dedicated pluralizer for adjectives used as copula complements (Udmurt *-es'* 13.5, Komi *-ə* 14.5).

One variable which crops up repeatedly across the family is the use of distinct copula verbs and/or constructions at different points along the copula continuum as seen in Table 1.25 (Dixon 2010b, 159–188; Payne 1997, 111ff.) .

Table 1.25. The copula continuum

equation	identification	categorization (proper inclusion)	property (attribution)	location	existence	possession
1	2	3	4	5	6	7

For example, Hungarian breaks at type 3, with copula clauses expressing equation through categorization using *val-/löv-* or Ø as just mentioned, but clauses of types 4–7 using *val-* (and its negative counterpart *nincs*) throughout, e.g. *két választás-unk van* two choice-1PL EX.3SG 'we have two choices', *nincs cipő-m* NEG.EX shoe-1SG 'I don't have any shoes'.

Negation can introduce another variable, because as this latter Hungarian example illustrates, many Uralic languages use different verbs or constructions depending on polarity. For example, copula is zero in Udmurt *už uno* (work much) and in Hungarian *sok a munka* (much ART work), both 'there's a lot of work', but both languages have a special negative copula for such an existential clause, viz. *už uno əvəl* (work much NEG), *Nincs sok munka* (NEG much work), both 'there isn't a lot of work'. Finnish, in contrast, uses verb *ole-* 'to be' in both affirmative and negative versions of this clause, and the copula subject 'work' is in the partitive, in the affirmative clause because it is quantitatively indefinite (*työ-tä on paljon* work-PART COP.3SG much) and in the negative clause because its indefiniteness has to do with referentiality: *Työ-tä e-i ole-x paljon* work NEG-3SG be-CNG much (Siro 1957).

The case selected by the copula complement can vary across the family; many languages use an essive or translative case (or both) to encode temporary or contingent states, and this can have effects parallel to those of copular clauses; compare Hynönen's minimal-pair *Ole-t muuttu-nut poliitikko-na* AUX-2SG change-ACT.PST.PTCP politician-ESS/TRA 'You have changed as/into a politician' (in DeGroot 2017, 51) and note the different valence frames of the semantically very similar verbs *pitä-* 'to think, regard,' and *luule-* 'to think, assume (to be)' as in *pid-i-n hän-tä kiva-na* think-PST-1SG 3SG-PART great-ESS and *luul-i-n hän-tä kiva-ksi* think-PST-1SG 3SG-PART great-TRA 'I thought s/he was great'. For detailed yet on the whole clear accounts, see the chapters in de Groot (2017).

A further complication can arise in languages that use person suffixes to encode both possession and nominal predication. In Tundra Nenets the possessor is flagged with a person suffix on the CC (e.g. *nya-wə* friend-1SG 'my friend'), while the copula subject is stated overtly by the nominative free pronoun *pidər²* 2SG, e.g. *pidər² mən² nya-w² Ø* 2SG 1SG friend-1SG 'you are my friend' (Nikolaeva 2014, 256; for an Enets parallel see 18.9.7.1.).

In more eastern languages we find copula clauses in relative-clause function which have their own construction (cf. Nikolaeva's *proprative relative*, 2014, 336), as in Nganasan *kou anikaʔa baŋ* ear big dog 'dog with big ears'. In this construction the adjective *anikaʔa* 'big' is not a postmodifier, but rather is copula complement to the copula subject *kou* 'ear', i.e. '[(its) ear(s)

are big] dog’. This construction is similar to one which is common in languages to the east of Uralic, such as Yukaghir (Maslova 2003, 12).

1.4.4.1. Comparative constructions

We take a quick look at comparative constructions here, since Uralic languages usually build these out of copula clauses. We may expand slightly on Dixon’s formula (Dixon 2012, chapter 26) for monoclausal comparative clauses by distinguishing the seven ingredients [1] comparee, [2] copula, [3] measure/degree, [4] parameter, [5] index, [6] mark (Stassen’s ‘comparative particle’, 2013), 7 standard, as in the English example

¹Paul ²is ³eight ³centimeters ⁴tall⁵er ⁶than ⁷Eve (is)

The Finnish strategy for such constructions is the same as the English insofar as the comparee is copula subject and the parameter is copula complement, as in ¹*Pauli*_{CS} ²*on* ⁴*vanhe*|⁵*mpi*_{CC} ⁶*kuin* ⁷*Eeva* Paul COP tall|CMP ‘Paul is taller than Eve’, and one Hungarian option differs from this only in that its copula is zero in the non-past indicative third person, viz. ¹*Pál* ²∅ ⁴*öreg*|⁵*ebb*, ⁶*mint* ⁷*Éva* Paul COP old|CMP than Eve. Many Uralic languages have parallel, ‘equivalent’ constructions with the mark of the standard encoded by a case suffix, e.g. partitive in Finnish: *Pauli on* ⁷*Eeva*-⁶*a vanhe*|*mpi* as well as in Veps (Grünthal 2015, 178) and Votic (Ariste 1968, 21); North Estonian uses the Elative case parallel to the proclitic *kui* (like the Finnish *kuin*, above), Ereht 2007:117. Komi likewise uses its Elative here, as in *Marina* ⁷*Nina*-⁶*ᵗᵢᵉ tom.ᵗᵢᵉk* Marina Nina-ELA young.CFV ‘Marina is younger than Nina’, 14.5.1, and Hungarian has an option with the ADESSIVE (here *-nál*), as in ¹*Pál* ²∅ ⁴*öreg*.⁵*ebb* ⁷*Évá*-⁶*nál*. Stassen’s term *locational* (2013) applies synchronically to all save the Finnic examples given here; most Uralic standards are flagged with ‘from’-locationals like the Estonian and Komi ELATIVE, while Hungarian uses a suffix which is synchronically an ‘at-locational’ (ADESSIVE *-nál*).

Further variation arises when we consider languages which do not use an index on the parameter, as in Mansi; the standard must then be expressed. The following example is from North Mansi, where the standard is flagged with the ABLATIVE (*-nəl*) (15.6, example (17)) ¹*Marina* ¹*e:ᵑ-um* ⁷*a:num*-⁶*nəl* ³[*sa:t ta:l-e*] ⁴*man* Marina younger.sister-1SG 1SG-ABL seven year.DET small ‘My younger sister Marina is seven years younger than me’, compare also Nganasan (Wagner-Nagy 2019, 200) ¹[*mənə nemi-mə*] ⁴*ᵗᵢᵉᵗᵢᵉᵗᵢᵉku* ²∅ ⁷[*nemi*-⁶*gətə-tə*] 1SG mother-1SG kind COP 2SG mother-ELA-2SG ‘My mother is nicer than your mother.’

1.4.5. Complex sentences

Complex sentence types occur in the world’s languages in interlocking patterns of the kind captured by Croft’s (2000, 297) diagram, in which various kinds of supporting clauses, complement clauses and relative clauses flow into one another. It is an attempt at visualizing the ways in which the components of various kinds of complex sentence are formally and functionally interrelated by situating them in a model of conceptual space. Serial verb constructions and paratactic constructions, for example, seem to lie somewhere between coordination and complementation.

Looking at complement clauses (COCL) in Hungarian, we may illustrate the simplest frame, characteristic of verbs occurring only with intransitive subjects, with sentences like *lehet*, [*hogy már el+men-t*]_S, BE-POT.3SG.P CMPL already VP+GO-PST.3SG.P ‘It’s possible that s/he’s left already’, in which the COCL is in S (intransitive subject) function. Only slightly more complex are sentences in which the matrix verb requires an extension, such as *eszembe* ‘to my mind’, in *eszembe sē jutott*, [*hogy hazudjak*]_S to.my.mind NEG come.PST.3SG.P CMPL lie.SUBJ.1SG.P ‘It didn’t even occur to me to lie’.

The valence frames of hundreds of Hungarian verbs of speaking, thinking, and related activities may be subclassified in terms of the syntactic functions which their complement clauses can fill. Using Dixon's S, A, O (introduced above at 1.4.1) we arrive at four basic kinds (plus that of CS, copula subject), and provision for an (optional or obligatory) extension to the core (E) then gives four additional kinds, for a total of nine kinds of complement-clause valence frame, presented here schematically with the COCL function underscored:

<u>S</u>	<u>OA</u>	<u>OA</u>	<u>OA</u>	<u>CS</u>
SE	OAE	OAE	OAE	

In a sentence with frame OA the complement clause functions as object in the matrix clause, for example *nem akar-ja*, [*hogy hoz-za-k valami-to*]_O NEG WANT-NPST.3SG.F CMPL bring-SUBJ-1SG.P something-ACC 'S/he doesn't want me to bring something', i.e. with [*hogy hoz-za-k valami-t*] CMPL bring-SBJV-1SG 'that I bring something' functioning as the object of the matrix verb *akar-ja* want-NPST.3SG.F 'she/wants it/her/him'. In contrast, in a sentence with frame OA the complement clause functions as transitive subject in the matrix clause, as in *Mari-to meg+lep-t-e*, [*hogy János idejében érkez-ött-Ø*]_A Mari-ACC surprised-PST-3SG.F CMPL János on.time arrive-PST-3SG.P 'That János arrived on time surprised Mari'. And both frames can occur simultaneously in the same sentence: we have *both* OA *and* OA, the former embedded within the latter, in *egy film élményét elrontja az*, [*hogy előre tudom, [hogy mi történik]*]_O ART film^R experience^D-ACC ruin.NPST.3SG.F *az* CMPL in.advance know.NPST.1SG.F CMPL what_S happen.NPST.3SG.P 'That I know in advance what happens ruins the experience of a film'. (For the function of distal deictic *az* here, see below.)

The majority of Hungarian complement clauses are built with *hogy*, but this complementizer may be omitted, especially if the clause is in object function, but other factors including mood, constituent order, and distance between the clause and its matrix verb are all factors (É. Kiss et al. 1998, 141–142). One kind of causal subordination is encoded with a complement clause with complementizer *amiért*, as in *dühös voltam rá*, [*amiért hazudott nekém*]_{COCL:E} angry be.PST.1SG.P SUBL-3SG *amiért* lie-PST.3SG.P DAT-1SG 'I was angry with him/her for lying to me', while another kind of causality uses a supporting clause with complementizer *mert* 'because': *dühös voltam rá (azért)*, [*mert hazudott nekém*] 'I was angry with him/her because she lied to me'.

A Finnish sentence with a structure of a simplicity parallel to Hungarian *lehet*, [*hogy már elment*]_S cited above is <*hänen*> *täytyy <lähteä>* 3SG.GEN be.necessary.NONPST.3SG leave.INF 's/he has to leave'. Here the (discontinuous) constituent <*häne-n* 3SG-GEN>...<*lähte-ä* leave-INF> 'for him/her to leave' is a complement clause in S function (with its subject in the genitive), the main verb being *täyty-y* be.necessary-3SG. The Finnish intransitive verb *pysty-* 'to be able to', with a valence frame which includes illatives, is one of several dozen verbs of ability, possibility and necessity in the language (Flint 1980; an example of this verb with an NP complement is *hän pysty-y työ-hön*_E 3SG be.up.to-NONPST.3SG work-ILL 's/he's able to do the job'). And *pysty-* can also take same-subject complement clauses built with the illative of the *mA*-infinitive (also called *third infinitive*; Sands 2011, 56), as in *hän e-i pysty-nyt [puhuma-an]*_E 3SG NEG-3SG be.able-ACT.PTCP.PST speak|V-ILL 'S/he was not able to speak'.

Hungarian can express a similar sort of meaning with an infinitival complement to the caritive adjective *képtelen*, as in *képtelen vol-t megszólal-ni* incapable be-PST.3SG speak.up-INF 'S/he was unable to speak' (more on copula clauses below at 1.4.4). In Finnish the complex [be able to]+[speak] just mentioned can be nested in a matrix clause with the verb *pelkää-* 'to fear',

which takes object complements, viz. *hän pelkäs-i [ett-ei pysty-isi [puhu-maan]_e]_o* s/he fear-PST.3SG CMPL-NEG.3SG be.able-COND.3SG speak-INF-ILL ‘s/he_i feared that s/he_i would be able to speak’. Now, one possible Hungarian translation of this Finnish sentence is *At-tól tart-ott [képtelen lesz [mögyszólalni]_E]_E* — a sentence devoid of transitivity. This is because the Hungarian matrix verb *tart-* in the meaning ‘fear’ has the valence frame SE, with oblique complements specifically in the ablative case (example with NP complement: *tart az ap-já-tól* fear.PRS.3SG.P ART father-3SG-ABL ‘s/he is afraid of her father’). This case frame appears on the distal deictic *az* as *at-tól* that-ABL, and functions in the main clause as a dummy, serving to flag the complement clause as a focalized E argument of the matrix verb: thus ‘s/he was afraid that s/he wouldn’t be able to speak’ is that-ABL fear-PST.3SG [incapable be.FUT.3SG [speak.up-INF]_E]_E.

The use of Hungarian distal deictics (like nominative *az* and ablative *attól* in examples above) as place-holders for dependent clauses (cf. ‘expletive pronominal’ in Kenesei et al. 1998, 28) is not restricted to complement clauses. They are used with both **supporting** and **relative** clauses, as well, forming what are most commonly called co-relative clause constructions. Finnish builds its most frequent temporal clause construction for subsequent time in finite supporting clauses with the neutral/anaphoric pronoun *se*, which in the genitive combines with postposition *jälkeen* ‘after’ as in *mi-tä tapahtu-u se-n jälkeen [kun ole-n rekisteröi|ty-nyt]_{sc}* what-PART happen-3SG ANAPH-GEN after when AUX-1SG register|REFL-ACT.PTCP.PST ‘what happens after I’ve registered?’, where *se-n jälkeen* is a grammaticalized NP (from the illative of *jälki* ‘trace’, like Hungarian *ut-á-n*, above). Restrictive relative clauses can be built on the same principle, again with co-relative *se*, which we find in the essive case in *si-nä yö-nä [jo-na me tyhjens-i-mme kahde-sta-an viski+pullon]_{rc}* ANAPH-ESS night-ESS REL-ESS 1PL empty-PST-1PL two-ELA-3SG/PL whisky+bottle-ACC ‘the night on which we two emptied a whisky bottle’. (Compare also the use of *kona* or *kodama* in Shoksha Erzya, and *kudo* or *mogaj* in Meadow Mari, 21.2.4).

In Hungarian the most common function of the distal deictics, in all three scenarios, is to stand in for the clause in question by occupying topic or focus position. In examples (12a, 12b, 12c) the distal deictics underscored in the first (here: main) clause cataphorically flag, by virtue of their position before the finite verb, that the ensuing clause is the focus of the sentence: (12a) is a restricted relative clause, in (12b) it is the content (rather than the fact) of my belief that is at issue, and in (12c) it is only or especially when s/he is angry that I am fond of him/her.

(12a)

<u>[Az-t</u>	az	embër-t] _{NP:O}	szeretëm,	<u>[aki</u>	elmëgy] _{RC}
that-ACC	ART	person-ACC	love.npst 1SG.F	REL	go.away.NPST.3SG.P

‘I love the person who leaves’

(12b)

<u>Az-t_o</u>	hiszëm,	[(hogy)	nem	szeret] _o	
that-ACC	believe.NPST 1SG.F	(CMPL)	NEG	love.NPST.3SG.P	

‘I think (that) s/he doesn’t love (me)’

(12c)

<u>Ak+kor</u>	szeretëm,	<u>[ha</u>	mérges] _{sc}	∅
that+time	love.NPST. 1SG.F	if	angry	COP.NPST.3SG.P

‘I love him/her when s/he is angry’

For a detailed and concise account of relative clauses in Uralic see chapter 21.

Hungarian has an extremely wide range of supporting clauses, nearly all of which use a marker distinguishing the kind of subordination involved (Dixon 2010a, 133). Among its temporal markers is *mi+után* what+after ‘after’, as in *mëgkërdëztem, miután mëgërkëzëtt* ask.PST.1SG.F after arrive.3SG.P or *miután mëgërkëzëtt, mëgkërdëztem* ‘I asked him/her after s/he arrived’ or ‘after s/he arrived, I asked him/her’, and contrast the COCL-construction *mëgkërdëztem, mikor ërkëzëtt mëg* ‘I asked him/her when s/he had arrived’, with question word *mikor* ‘when’ in focus position, displacing the verb particle *mëg*. Finnish has both finite and nonfinite constructions for this set of affairs, e.g. alongside (*sen jälkeen*) *kun hän tul-i, kysy-i-n* (that-GEN after) when 3SG come-PST.3SG ask-PST-1SG after s/he came I asked about’ there is also the equivalent, nonfinite *häne-n tul-tu-a-an kysy-i-n* 3SG-GEN come-PASS.PTCP.PST-PART-3SG ask-PST-1SG.

Hungarian also has a nonfinite verb form in *-vA* whose functions include same-subject subordination, as in *haza+tër-ve mindjárt el+alud-t* VP+arrive-PST.3SG immediately VP+sleep-PST.3SG.P ‘s/he fell asleep right after getting home’, parallel to a finite construction with *mihelyt* ‘as soon as’, e.g. *elaludt, mihelyt hazatért*; here Finnish also can use either a finite or nonfinite construction, e.g. *hän nukahti* ‘s/he fell asleep’ with either finite *heti kun hän ol-i palan-nut koti-in* right.away when AUX-PST.3SG return-ACT.PTCP.PST home-ILL or nonfinite *heti koti-in palat-tu-a-an* right.away home-ILL return-PASS.PTCP.PST-PART-3SG. Unlike Hungarian, however, Finnish can use this construction in different-subject third-person subordination by inserting genitive subject pronoun *häne-n*, as in *heti häne-n koti-in palat-tu-a-an Liisa kysy-i* ‘right after s/he (someone else) got back Liisa asked’ vs. *heti koti-in palat-tu-a-an Liisa kysy-i* ‘right after s/he (Liisa) got back Liisa asked’.

Since the early 1980s other, new kinds of subordinating constructions have been reported for Hungarian, including the questioning of arguments in a complement clause, as in *ki-t gondol-sz [hogy lát-t-a Ödön-t]* who-ACC think-PRS.2SG CMPL see-PST-3SG.F ‘who do you think [saw Edmund]?’ or the embedding of a relative clause into a complement clause, as in *a lány [aki-vel szeret-né-d [hogy beszél-je-k]]* ART girl REL-INST like-CD-2SG.F CMPL speak-SUBJ-1SG.P ‘the girl [with whom [you would like me to speak]]’ (see Marác 1989, 229ff.). Apparently much older are relative clauses of the kind discussed most recently by Nádasy (2006), in which a finite relative clause precedes the fuller statement of the common argument, and thus occupies the regular position for an adnominal modifier in Hungarian. An example offered by Nádasy is *[tavaly aki-vel jár-ta-m] csaj, at-tól hall-otta-m* last.year REL-INST go-PST-1SG.P girl DIST-ABL hear-PST-1SG.F ‘I heard it from a girl I was going with last year’; a resumptive distal like *at-tól* seems to be an obligatory component of the construction. This kind of construction has apparently been popular (but under the radar of professional linguistic accounts) for about a century: Galambos (1907) wrote about it in some detail, although his interest was primarily in terms of ‘attraction’ and its inverse; see also 21.2.5.

Elsewhere in Uralic there is considerable variation in the formation of supporting and relative clauses: consult the index for relevant sections.

It often goes unremarked, but asyndetic complement clauses are frequent in all Uralic languages. Here is an example from Mari: *u3-af ifi-m u3 kol-af kolam mo-m listaf* see-INF NEG.PST-1SG see.CNG hear-INF hear.PST.1SG what-ACC do-PST.3SG ‘I didn’t see (anything, but) I heard what she was doing’ (Beke 1938, 99). And here is an example from Ngasan: *natamunu-ŋu-ŋ süobt’aj? huj-t’i-mi d’ebtu-j* think-INTER-2SG really want-PRS-1PL goose-ACC.PL ‘Do you think we really want geese?’ (Katzschmann 2008, 116).

1.4.6. Reference tracking and the organization of discourse

Uralic languages, like natural human languages everywhere, present and distinguish participants in a situation or narrative by means of referential items which grammarians call noun phrases (including demonstratives and pronouns). In any given stretch of discourse, those items which function as subjects are invariably indexed as subjects on the finite verb, and in languages from the eastern end of the family as well as in Mordvin those functioning as direct objects may also be indexed as objects. In most Uralic languages (but on Finnish see below) free pronouns are employed only exceptionally, for what is loosely termed *emphasis*, with subtypes including various kinds of topicality as well as of focus and/or contrast. While the notion of ‘pro-drop’ is still widely used to account for the morphosyntax of many Uralic languages, it seems to us a roundabout and unnecessary device, and so we have not relied upon it in this book. To take an example at random, we do not seek to give an account of a form like Nganasan *n’obtə-mimba-ta-ʔ*, wash-HAB-AOR.REFL-3SG.R ‘s/he usually washes herself’ in terms of ‘binding’ its third-person reflexive suffix *-ʔ* to an unrealized ‘PRO’ somewhere in the clause (cf. Wagner-Nagy 2019, 462–463). This is because we agree with Haspelmath (2013, 222) that in the Latin sentence *Marcus venit* ‘Marcus comes’ there is no need to presuppose that the subject argument is expressed only once, cf. also Dixon’s (2010a, 40) example from Tiwi.

Finnish is unusual in that in addition to obligatory subject indexing, for third-person main-clause subjects it uses a clitic pronoun chosen from a three-way pronominal syntactic paradigm *hän : se : ∅*. Zero is selected in two scenarios: First, zero is obligatorily selected for generic reference, i.e. when any indeterminate human (or people in general) might be the subject, as in \emptyset_A *se-n_O näke-e* it-ACC see-3SG ‘one can see it’; note that in this configuration a conominal is precluded, and contrast *se-n_O näke-e Titus_A* ‘It’s Titus who sees it’, in which the subject reference is not generic but rather specifically to someone named Titus and not someone else (*ei-kä Matti* NEG.3SG=PTCL PN ‘and not Matti’) (see also VISK, §1347 and references). Second, zero is optionally selected in a sequence subject to pivot, a kind of grammaticalized topic (Dixon 2010a, 172, and 2012, 199), which in Finnish amounts to same-subject main clause sequences, whether asyndetic or introduced by conjunctions such as *ja* ‘and’, *sillä* ‘since’, *kuin* ‘as if’, *ennen kuin* ‘before’, and even *mutta* ‘but’, e.g. *Hän_A avasi [aidan portin]_O ja ∅_S tuli minua vastaan* ‘s/he opened a gate in the fence and came to meet me’ (see VISK, §1362, §1431 and references). Apart from these two sets of circumstances either *hän* or *se* must be used, the former formal, the latter casual or colloquial (and the full forms of locuphoric pronouns *minä* and *sinä* have casual/colloquial pendants in these contexts, as well: *mä* and *sä*), e.g. *häne-llä_E ol-i [suure-t silmä+lasi-t]_S ja hän_A muistutt-i [eräs-tä tuttava-a-ni]_O* s/he-ADE be-PST.3SG large-PL eye+glass-PL and s/he resemble-PST.3SG certain-PART acquaintance-PART-1SG ‘S/he had big glasses and reminded me of an acquaintance’ (different subjects: *silmläsit* ‘glasses’ in the first clause, *hän* ‘s/he’ in the second). Proper names (and generic designators like *nainen* ‘the woman’ or *poika* ‘the boy’) are frequently used to avoid a glut of *hän/se* subject pronouns, perhaps especially in translations from languages in which reference tracking is assisted by gendered pronouns, e.g. *Nainen saa ostoksensa, maksaa, antaa viisi kruunua, josta saa takaisin, ja poistuu* ‘She (the woman) picks up her purchases, pays, gives five crowns, from which she gets change, and departs’ translating *Hun får sine Ting, betaler, leverer en Femkrone, som hun får tilbage på, og går.* (Hamsun, *Sult*; Finnish translation by Viki Kärkkäinen, 1916).

Generic human subjects are encoded by zero pronoun plus third-person indexing (\emptyset_A *se-n_O näke-e*, cited above). The generic construction is distinct from **indefinite** subject indexing,

which in non-compound tenses is formed with its own dedicated suffixes, precludes a conominal, and implies a non-singular human (and indeterminate) subject. Transitive verbs in the indefinite take zero-flagged (i.e. nominative) objects, e.g. *koulu_o remonto_i-da_n* school.NOM renovate-IDF ‘the school will be renovated; they will renovate the school’. The two constructions co-exist and often overlap, but they do contrast, e.g. *Sauli-sta huomas-i* vs *Sauli-sta huom_{at}-tiin jo lapse-na, että häne-llä on lahjo-j-a* PN-ELA notice-PST.3SG / PN-ELA notice-PST.IDF already child-ESS CMPL he-ADE be.3SG gift-PL-PART ‘One could tell / People could tell that Sauli was gifted as a child’ (VISK, §1363).

In Hungarian in the absence of explicit NPs a change of non-locuphoric subjects (or topics) in subsequent clauses is signalled with free pronouns, either personal (*ő*) or distal demonstrative (*az*) (Kenesei et al. 1998, 121–123; Orosz 1969). For example: *int-ëtt-∅ az ör-nek, mire az kezd-t-e le+ven-ni a kabát-já-t* give.a.sign-PST-3SG.P ART assistant-DAT whereupon *az* begin-PST-3SG.F off+take-INF coat-3SG-ACC ‘He_i jerked his head at the guard, whereupon he_j started to take off his coat’. Finnish uses the proximal pronoun *tämä* in somewhat similar circumstances: *Kun hän astu-i avustaja-n toimisto-on tämä istu-i paraikaa aamu+kahvi-lla* when s/he step-PST.3SG assistant-GEN office-ILL PROX sit-PST.3SG just morning+coffee-ADE ‘when s/he_i stepped into the assistant’s office s/he_j was just having (his/her) morning coffee’. On switch reference and Finnish *tämä*, see Kaiser (2003). In contrast with this use of the proximal *tämä* of Finnish, Hungarian uses its distal demonstrative pronoun switch reference (*az* or *am=az*).

Elsewhere in Uralic, textual coherence and continuity are established and maintained by changes in alignment (‘passive promotion’ and ‘dative shifts’) as well as differential argument indexing and flagging. (On the interrelated functions of alignment and differentiated object marking see Haspelmath 2020.)

Real-world facts and knowledge of these facts is usually more than enough to clarify who is doing what to whom in most (con)texts. For example, we may summarize the following short text sequence (in a variety of eastern Mari, from a folkloristic collection edited by Beke (1938, 102) schematically by saying that (13a) a man skins a hare, (then) (13b) cooks it (in a pot, for his dinner); (13c) the hare finishes cooking; (13d) the man (then) eats (the hare):

(13a) Mari, Beke (1938, 102)

mare_a wodef möran-êmo nikot-ef, ∅_a ∅_o poδ-ef [kock|a]f folt-a
man at.evening hare-ACC skin-3SG A O pot-ILL [eat|INF] cook-3SG
‘One evening the man skins a hare, cooks it in a pot to eat (i.e. for dinner).’

(13b) ∅_s kü-n fu-ef
S cook-CVB arrive-3SG
‘It’s ready (i.e. it finishes cooking)’

(13c) ∅_s kock-ef
S eat-3SG
‘He eats’

(13d) ∅_s [mal|a]f püre-n]sc woz-ef
S sleep|inf enter-CVB lie.down-3SG
‘Going in to lie down, he sleeps.’

See Skribnik (2001) and Kulonen (1989) for details.

1.5. Lexicon

1.5.1. Systematic aspects of the lexicon: derivation and compounding

1.5.1.1. Derivation

For a recent treatment of derivation in Uralic see Kiefer and Laakso (2014). Here we look at a few Finnish and Hungarian examples, then look briefly at Selkup. We close this section with themes.

In Table 1.27, Nominals derived from nominals (N<N) and from verbs (N<V) may be compared with Verbs derived from verbs (V<V) and from nominals (V<N).

Table 1.27. Derivation from a noun base ‘stone’ and verb base ‘to fear’ in Hungarian and Finnish

	noun base ‘stone’	verb base ‘to fear’
	Hu <i>kő</i> (köve-), Fi <i>kivi</i> (kive-)	Hu <i>fél</i> -, Fi <i>pelätä</i> (pelkät-, theme ^pelk-)
N<N	Hu: köve s ‘made of stone’ Fi: kivi nen (kiv ise) ‘made of stone’	Hu fél énk ‘timid’ Fi pelo kas (pelokkaa-)
N<V	Hu: köve z és ‘stoning’, köv ül et ‘fossil’ Fi: kive t ys ~‘paving’, kive tty mä ‘fossil(isation)’	Hu fél elem ‘fear’ Fi pelä sty s ‘fright’, pelk o ‘fear’
V<N	Hu: köve z- ‘pave’, köv ül- ‘fossilize’ Fi: kivetä (kive t-) ‘pave’ kive tty- ‘fossilize’	Hu félem lít- (<i>irreg</i>) ‘frighten’ Fi pelo tta- ‘frighten’
V<V	Hu: kövez get- ‘pave DUR’ Fi: kive t tä- ‘make hard’	Hu: fél t- ‘fear for’ Fi: peläs ty- ‘become frightened’

The primary function of the V>V conversion is valence change (Table 1.28), often accompanied by an alteration of aspectual features (Table 1.29). The two types of suffixes often combine, e.g. *käänt|y|ile*- turn|REFL|FREQ- ‘to keep turning ITR’, *seis|aht|u*- stand|MOM|REFL- ‘to halt, to stall’, *hais|t|att|ele*- smell|TR|CAUS|FREQ- ‘to tell someone to buzz off (lit. make someone smell something repeatedly)’ For a detailed treatment of verbal derivation in Finnish see VISK (§330–370).

Table 1.28. A sample of Finnish valency-changing suffixes

	base	+VAL	-VAL	+VAL	-VAL
‘see TR’	näke-		näk y- ‘to be visible’	näy ttä- ‘to show; seem’	näy ttä yty- ‘to show oneself, make an appearance, appear’

‘turn, translate TR’	kääntä-	käännä ttä- ‘to have translated’	käänt y- ‘to turn ITR’	käänn y ttä- ‘to convert’	
‘rise ITR’	nouse-	nos ta- ‘to raise’		nos ta tta- ‘to make raise’	
‘go ITR’	käy-	käy ttä- ‘to use’	käy ttä yty- ‘to behave’		

Table 1.29. A sample of aspectual/aktionsart changing suffixes in Finnish

	base	FREQ	MOM	FREQ+MOM
‘jump ITR’	hyppi-hypät-	hypl el- ‘to keep jumping’	hypl ähtä- ‘to jump (once)’	hypl ähd ele- ‘to jump around’
‘laugh’	naura-	naure skele- ‘to laugh on and off’	naur ahta- ‘to laugh (once)’	naur ahd ele- ‘to utter short bursts of laughter intermittently’
‘pull’	vetä-	ved el- ‘to keep pulling’	vet äise- ‘to pull (once), yank’	
‘read’	luke-	lue skele- ‘to read on and off’	luk aise- ‘to read quickly’	

The Hungarian suffix $|(t)At-$ can be causative or factitive; ‘[b]oth require a causer but the factitive presupposes an executor’ (Kiefer 2016, 3322), and the causative suffix can only be attached to non-agentive verbs, while the factitive attaches only to agentive verbs (for details, see Kiefer and Komlósy 2011). For example *for|gat-* ‘to cause to turn ITR’ is causative of non-agentive *for|og-* ‘turn ITR’, and *for|gat|tat-* is factitive of the causative (turn|CAUS|FACT) ‘to cause to turn ITR’.

Aspectual alterations to these derivatives are also usually possible, if textually relatively infrequent, e.g. DUR/FREQ *vastag|ít|gat-*, *szél|és|ít|get-*; cf. Kiefer 2016, 3322: ‘Note that both the factitive and the causative can be followed by the attenuative suffix $-(V)gAt$: *for|gat* (causative) + *tat*(factitive) + *gat*(attenuative) ‘to make sb. turn sth. from time to time’. The attenuative suffix can be followed by the possibility suffix, which, however, cannot be used to derive new words.’

In *for|gat-* ‘cause M to turn’ it was assumed that we have to deal with a root *forog-* ‘to turn ITR’ and a causative suffix *|at-*. However Hungarian also has the equipollent verb-pair *ford|ít-* ‘to turn once TR’ and *ford|ul-* ‘to turn once ITR’; in these forms there seems to be a segmentable element *d* which we may associate with a semelfactive meaning (‘do X once’); this *d* would then pattern with the *g* found in DUR/CONT *forog*, and so we would have a theme \wedge for, with derivatives *for|og-*, *for|d|ít-*, and *for|d|ul-*. Numerous parallels may be found, particularly in descriptive vocabulary such as verbs of resounding *kon|g-* :: *kon|d|ul-* : *kon|d|ít*, quaking *rén|g-* :: *rén|d|ül-* : *rén|d|ít-*, and movement *moz|og-* :: *moz|d|ul-* : *moz|d|ít-*.

Elsewhere in Uralic, derivational processes and products are every bit as productive as in Finnish or Hungarian, in fact, even more so: in Selkup, for example, at least three kinds of adjectives (relationals, similitudinal, locational) can be derived from nominal bases that have already been inflected for case, person, or both, all with suffix $|A$. For example, from Taz Selkup *anti* ‘boat’ we have not only *anti|A* ‘having to do with (a) boat(s)’ but also *anto-qi|A* boat-LOC|A

‘located in the boat’ and *anna-nti*| λ boat-2SG| λ ‘belonging to your boat’; see Spencer 2013, 380–409.

In a programmatic but careful paper Janurik (1987, 47–61) presents a clear description of the kinds of derivational mechanisms at work in the verb lexis of North Selkup. He lists 201 monomorphemic roots, subcategorizing them by their intrinsic valence and aspect. He then distinguishes not only deverbal from denominal derivation, but also those situations in which no root is clearly segmentable: we are instead presented with a pair of equipollent derived verb stems built to the same ‘latent’ base (‘[d]ie relative Stammverben’, Janurik 1987, 51), e.g. noun *sūri*| \tilde{p} ‘wild animal’ parallel to adjective *sūri*| λ ‘wild’ and verb *sūri*| \tilde{s} - (with captative suffix | \tilde{s} -) ‘to hunt game’. For more captative verbs see 6.5.1, 17.11, and 20.6.3.

Analytical devices such as the fictive stem **sūri*, implied by factoring the equation of Janurik’s ‘wild animal’ : ‘to hunt’, were described for Finnish in Austerlitz (1976, 13–20; 1982), and their usefulness for aspects of Hungarian exploited in Abondolo (1988). Austerlitz, who called these stems *themes*, suggested that they could play a part in a discussion of intersections of form and meaning such as the Finnish noun: verb pair *loppu* ‘end’ and *lopetta-* ‘to finish TR’. He marked such themes with preposed circumflex, thus: \wedge loppe. Note that the theme \wedge loppe is neither noun nor verb, and this permits us to employ regular Finnish mechanisms to explain the relatedness of the forms, namely simple suffixation for the verb (with syllabic gradation *tt* > *t*) giving \wedge lope|*tt*a-, and completely regular cancellation of stem-final *e* by the noun-forming suffix |U, viz. \wedge loppé|U > *loppu*. Much (but by no means all) Finnish lexis attributable to themes is affective or deictic, two areas of the lexicon that are often side-lined. But once themes are admitted as explanatory devices, their role in Finnish may be seen to be widespread, and involved not only derivation, but also at the inflectional end of the morphological spectrum, as well as in compounds. With theme \wedge loppe in our arsenal, we can explain the adverbial intensifier \wedge lope-*n* (as in *loppen uupunut* ‘completely exhausted’) as a simple genitive/accusative formed with -*n*, and many parallel formations immediately suggest themselves, such as \wedge kauka in *kaua-n* ‘for a long time’ (\wedge kauka-*n*, cf. locative/inessive \wedge kauka-*na* ‘in a remote place’) or \wedge pika in *pia-n* ‘soon’ (\wedge pika-*n*, cf. compound \wedge pika+*juna* \wedge pika+*train* ‘express train’); compare also the locative/inessive postpositions *taka-na* ‘in the space behind’ (from theme \wedge taka, cf. \wedge taka+*ikkuna* ‘rear window’ and \wedge taka|*ntu-* (i.e. *taantu-*) ‘regress’ or \wedge taka|^l- ‘back, guarantee’ (infinitive *taata*)) and \wedge luo-*na* ‘chez’ (cf. lative *luo-*^(s) and \wedge lo|*ise* (nom.sg *loinen*) ‘parasite’ with regular diphthong shortening). Viewed as a theme, the stem of the scalar admodifier \wedge sange-*n* ‘quite’ would then be relatable, by unsystematic but productive patterns of (de)nasalization and gemination (Austerlitz 1984, 250), to *sankea*, *sakea*, and *sankka*; see also affective vocabulary, below (1.5.1.3).

1.5.1.2. Compounds

There is some considerable variation in the formation and use of compounds across the family. Finnish often joins the members of a compound with the genitive, as in *norsu-n+luu* elephant+bone ‘ivory’, but simple juxtaposition is also frequent, as in *koira+vero* ‘dog tax’; Hungarian uses juxtaposition for both of these (*elefánt+csont*, *eb+adó*). Differences between compounding in North Estonian (8.5.2) and in Surgut Khanty (16.5.1.1) will illustrate some of the range of forms and uses.

Dvandva compounds occur sporadically in some Uralic languages, e.g. Finnish *maa&ilma* earth&air ‘the world’, Mari *šim&mokš* heart&liver ‘pluck’, Moksha *al'a-t&täd'a-t* father-PL&mother-PL ‘parents’ (11.11), Obdorsk Khanty *nēŋ&xū* woman&man ‘person’, Tromagan

Khanty *rūt̪i&kāntəy* Russian&Khanty ‘person’ (Honti 1984, 67); cf. 13.4 for Udmurt. For formally reduplicative compounds see the next section (1.5.2).

1.5.2. Affective factors: descriptive and sound-symbolic features

Extensive stretches of the lexicon of all languages have pervasive and productive features yet are also less systematic than vocabulary produced by derivation and compounding. Characteristic of this subdomain of the lexicon is a symbiosis or traffic in features between and within consonant and vowel sets, resulting in sets of vocabulary related in parallel ways on both semantic and acoustic planes. We adopt the term *affective* here as an overarching one, intended to include *sound-symbolic*, *descriptive*, and *ideophonic*, and which may be (or may not) show onomatopoeic features (Sapir 1929). Items from this portion of the lexicon are sometimes classified as slang, sometimes as poetic; what they have in common is unpredictable creativity.

Vocabulary of this kind is exemplified by Hungarian reduplicative verbs like *dirmeg-&dörmög-* ‘to grumble (of a bear)’, or the Erzya *ut'er&ut'er* (expressive of whimpering: Mészáros 1999, 12, cf. also the Erzya derivational suffix *|ksn'e-*, which attaches to onomatopoeic roots, e.g. *mjav|ksn'e-* ‘to meow’, Mészáros 1999, 87). In Uralic languages, reduplication is probably the most widely exploited strategy for creating word forms of this kind; cf. also North Mansi *s'oxri&xoxri* ‘dragonfly’, (Bakró-Nagy et al 2022, 562562), Kazym Khanty *ļj̄nəm&l̄j̄nəm* (Steinitz 1966-1993, 837).

Another kind of creative word-formation is seen in the over two hundred verbs in Finnish with sound-symbolic meanings that are formed with the derivational suffix *ise-* added to themes (see 1.5.1.1) of the shape \wedge CVC, a kind of dedicated morphology like that of Erzya *|ksn'e-* mentioned above. These Finnish verbs pattern with noun pendants formed with *|inA*, e.g. *vapise-* ‘to shiver’, *vap|ina* ‘shiver’; *rapise-* ‘(of rain:) to patter, (of dry leaves:) to rustle’, *rap|ina* ‘patter, rustle’. Further examples to illustrate the sound symbolism are: *sihise-* ‘to hiss (of a snake)’, *sähise-* ‘to hiss (of a cat)’, *suhise-* ‘to rustle (of wind)’; or *pirise-* ‘to ring (of a phone)’, *pärise-* ‘to rattle (e.g. of a drum)’, *porise-* ‘to bubble (of a porridge)’, *pörise-* to buzz, to drone (of a bumblebee)’. Jääskeläinen (2015) shows that the distribution of consonants in themes is not random. Most if not all of the hundreds of Finnish adjectives derived with *|eA* are also built to such themes; they probably originated in imperfective participles of stative verbs. Examples are words like those for ‘thick, tight, dense’, with *i/e/uu* vocalism and *s_k/t_h* consonantal frames, viz. *sakea tiheä tuuheä sikeä* (and even *sitkeä* = North Saami *dadgat* ‘firm of flesh’, Sammallahti 1998, 124). See also Anttila (1976), Haarala (1974), Jalava (2013), Rauhala (2015) and Rytkönen (1935).

1.6.

Verbal

Art

As in all traditions, when any linguistic variables are exploited to focus at least part of the listener’s or reader’s attention to the language itself, we are dealing with a form of art. Paul Friedrich (1986, 3) has argued that ‘the most interesting and surely the most complex differences between natural languages are centered in the relatively poetic levels of sound and meaning, be this poetry strictly speaking or a poetic stratum in other kinds of discourse.’ This fact is so obvious as to be seldom remarked, but it is worth bearing it in mind because in the case of many of the Uralic languages we have at our disposal extensive bodies of verbal art texts. This is particularly true of Finnic and the Ob-Ugric languages, but collections such as

those of Beke for Mari, or of Paasonen for Mordvin, are treasure-troves suitable for data mining but also for the kind of fine-tuned linguistic-typological explorations which discover the core values, or valences, at the centre of a Sapirean appreciation for what makes a language-and-culture unique. Work with materials like Kannisto and Liimola's Vogul texts (1951-1963) is therefore to be strongly recommended to anyone who would be a student of Mansi diversity, and a reading through of Beke (1938), more than 600 pages of text all narrated by the same WWI prisoner, will provide insights into Mari language and culture through the mind of one specific creative individual. The variations and repetitions in this *oeuvre*, large and small, demonstrate part of what Friedrich meant when he wrote that 'language is rough drafts for poetry' (1986, 35).

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