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ANALOGICAL DEVELOPMENT OF LIVONIAN *i*-ADJECTIVES

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Abstract. This article presents both a diachronic and synchronic explanation for the occurrence of the suffix *-i* in Livonian adjectives. The suffix is prevalent among Livonian adjectives and in most cases it can be derived directly from the Finnic suffix **-in(En)*, such as Courland Livonian *roudi* 'of iron' < **rautain(ęn)*.

In some Livonian adjectives, however, the suffix is of a secondary character and, therefore, analogical, such as Courland Livonian *madāl* ~ *madāli* 'low; shallow'. Such a secondary spread of the suffix indicates its widened use towards that of a general adjectival marker. Motivations for such a change would be the language-internal need to distinguish between grammatical cases following extensive apocope and syncope, and language-externally the prolonged and deep contacts with Latvian, an Indo-European language with separate paradigms for nouns and adjectives.

Keywords: Livonian, historical linguistics, morphology, adjectives, analogy, language contacts

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1. Introduction

Livonian is a southern Finnic language, traditionally spoken on the Latvian shores of the Gulf of Riga. The language has two main dialects, Courland Livonian and Salaca Livonian. The former was spoken as a community language on the northernmost coast of the Courland Peninsula until the Second World War, whereas the latter was spoken around Salaca in northern Vidzeme until the mid-19th century (Blumberga 2011).

Livonian stands out as a distinct Finnic language in that there is no extant dialect continuum between Livonian and its neighbouring Finnic languages. Livonian has undergone a number of sound changes that have greatly diverged the language from other Finnic languages,

including some sound changes that are more similar to Indo-European languages around the Baltic Sea such as umlaut or the broken tone (Kallio 2016). In addition, Livonian shares secondary areal features with other southern Finnic languages (Pajusalu 2012).

In addition to sound changes, Livonian exhibits contact-induced grammatical changes caused by prolonged and intensive interaction with Latvian (Ernštreits, Kļava 2014). Such contacts have led to Livonian developing, among other features, a nominal typology towards the model of Latvian. For example, some Livonian nouns have taken the ending *-(ə)z* in the nominative singular, which in Uralic languages is generally unmarked. While the affix itself shows more widespread (Southwest) Finnic use, its extensive spread in the nominal paradigm is a distinctly Livonian development (O'Rourke 2024).

In this article, I argue that Livonian adjectives were also in the process of developing a similar typology of a word class marker. Firstly, I present the literature on the study of the Finnic suffix **-in(En)* and how it developed in Livonian. I then give an overview of the distribution of *-i* in Livonian adjectives based on language corpora. Finally, I discuss the mechanisms of the analogical spread of the suffix.

2. Proto-Finnic **-in(En)*

The Finnic cognates of Livonian adjectives ending in *-i* in words such as *pu'nni* 'red' are reconstructed as having the Late Proto-Finnic (LPF) suffix **-in(En)*, e.g. **punain(ęn)* (Kettunen 1947: 56; Viitso 2008: 304).[1] The LPF suffix has a vowel that, when attached to vowel-final stems, created non-initial-syllable diphthongs. The examples above show that such diphthongs are not preserved in Livonian. In fact, the development of the non-initial-syllable diphthongs between Late Proto-Finnic and Proto-Livonian has unfortunately been blurred by analogical changes to the extent that the origin of the development has been deemed synchronically unattainable, and Livonian has not been used in comparative research of Finnic sound changes (Tunkelo 1938: 30–31; Kallio 2012b: 32). Yet, the comparison of the Livonian words to their

1 The reconstruction here follows the theory that Proto-Finnic had an original vowel harmony for *E*-stems, on which cf. Kallio (2012a), Häkkinen (2019).

Finnic cognates that retain non-initial-syllable diphthongs can possibly shed light also on the development of Livonian diphthongs. More on this further below.

The reconstruction of the Proto-Finnic suffix **-in(En)* has been one of the most elusive subjects in Fennistics. The paradigm of the suffix is unusual in that the nominative singular has a nasal that varies with a sibilant in the oblique cases. An adequate sound law has not been given for such a sound change to explain the alternation, and indeed there has been a tendency to explain the suffix as suppletive, albeit without a conclusively convincing proposition (cf. Viitso 2008: 304).

The LPF suffix derives from Early Proto-Finnic (EPF) **-ńćə-*, termed the "diminutive-possessive" of nouns (cf. Rapola 1966: 467; Hakulinen 1979: 38, 125; Hallap 2000 [1955]: 177–178; Kallio 2012b: 35). With regard to **in(En)*-adjectives, Hallap and Kallio mention the development of the "diminutive" of *E*-stem nouns. Similarly to EPF **äj* > Middle Proto-Finnic (MPF) **ej* after a light initial syllable, the EPF combination of **ə* and **ń* resulted in the same diphthong in MPF, e.g. EPF **wetəńćə-* > MPF **wetejce-* > LPF **vetise-* 'watery.GEN' (Hallap 2000 [1955]: 178; Kallio 2012b: 34–35). Such a reconstruction shows that the Finnic sound change **ti* > **ci* occurred before the monophthongisation of the non-initial-syllable vowel. Also, the raising of EPF **aj* > MPF **əj* > **ij* > LPF **i* took place before the sound change **ń* > **j / _Ć*, resulting in such *A*-stem adjectives as EPF **punańćə-* > MPF **punajcę-* > LPF **punaisę-* 'red.GEN' (Rapola 1966: 468; Kallio 2007: 231–232, 2012b: 36).

2.1. Word-final **n*

The Livonian form of the Proto-Finnic suffix has two elements that have been discussed in the literature: the apocope of **n* and the quality of the suffixal vowel. Starting from Setälä, the general explanation for word-final **n* is that it was lost in Livonian, whereby the development of the suffix **-in(En)* is reconstructed as **nainęn* > **nainę* > **nain* > *nai* 'woman'. Setälä acknowledges that *nain* is reported for Salaca Livonian, but even in that dialect there are such forms as *übbi*, *übi* 'horse', *raudi* 'of iron'. The Livonian forms give Setälä reason to assume that in Livonian, there were two periods of the apocope of word-final **n*. Even in this case, apocope occurred originally in certain sentence-phonetic

positions, because counter-examples to this sound change are compounds that preserve **n*, e.g. *mie'rnaigās* 'by the sea', or cases such as the instructive or dative, e.g. *taziņ* 'steadily', *übīzən* 'to the horse' (Setälä 1899: 379–380).

Posti has a slightly different reconstruction: **nainẹn* > **nainn* > **nain* > *nai*. Posti formulates that the vowel in a closed second syllable syncopated, when next to **s* or a sonorant *l*, *m*, *n*, *r*. He notes this same condition in polysyllabic stems next to **s*, e.g. *pu'nnizt* < **punaiseṭ* (Posti 1942: 83). Unlike Setälä, Posti argues for word-final **n* to have been lost once, following the syncope of the second-syllable vowel (Posti 1942: 280–281, 311).

Zeps, in his critique of Chafe's and Shibatani's use of the Livonian loss of **-n* as an example of a universal sound change, criticises both Setälä's and Posti's reconstructions for this postulation. He points out that word-final **n* was not lost universally, but in a few well-defined categories in addition to the suffix **-in(En)*, such as numerals, the genitive and allative case endings, and the first person singular ending. Zeps argues instead that the Livonian forms developed first by the loss of the suffix vowel, followed by the elimination of the consonant cluster that developed, either by contraction **nainẹn* > **nainn* > *nain* (Salaca Livonian) or loss **nainẹn* > **nainn* > *nai* (Courland Livonian) (Zeps 1974: 140–141).

While Viitso agrees with Posti that the reconstruction **nainn* is supported by evidence elsewhere of Livonian vowels syncopating in unstressed syllables, he suggests a different approach in that he reconstructs the LPF form as **-ine* in the nominative singular. A final **n* would have been added as a strategy in some Finnic languages to avoid the Finnic word-final sound change **e* > **i*, which would have increased the dissimilarity between the inflectional allomorphs within the paradigm. The other strategy would have been to apocopate the word-final **e*, as in Votic and Ingrian (Viitso 2008: 304).

A recent theory suggested by Junttila (p.c.) is that the Finnic suffix is cognate to that of the Mordvin languages as presented by Hallap (2000 [1955]: 177–178).[2] Hallap follows Bubrikh's observation that the suffix **-in(En)* should be reconstructed with a palatal nasal **ń*, not

2 Junttila (p.c.): presentation at the etymological workshop in Helsinki organised by the University of Helsinki in spring 2024, and comments to the draft of this article.

the traditional **ŋ*, because the Mordvin suffix *-ń* is, besides being the genitive ending, also used an adjectival derivative suffix, e.g. *keveń* 'of stone; stoney'. These adjectives can decline nominally with the determinative suffix *-ćе*, followed by the definitive suffix *-ś*, e.g. *keveńćeś* 'the one of stone', *keveńćeńt́* 'of the one of stone'. Junttila proposes that the determinative suffix *-ćе* is originally the pronoun **ćе* > Fin. *se* 'it' and that the Finnic adjectival suffix derives from the nominal derivative, e.g. Fin. *kivisen* < **kivəńćən* < **kivən-ćə-n*. The nominative form would have been originally **kivin*, in which the vowel would derive either analogically from the oblique stem or from a regular sound change. In the latter case, the adjectival derivative suffix, represented by Mordvin *-ń*, would derive from **-ńə*, yielding EPF **kivəńə* > MPF **kivəjn* > LPF **kivin-e̮n*, with a secondary *-En* to prevent associating with the superlative (**-mA* > **-mə* > **-jm* >) **-in*. Following Viitso's and Junttila's reasoning, in this study the reconstruction **-in(En)* is used for Proto-Finnic and **-in* for Proto-Livonian, unless citing reconstructions by other researchers.

2.2. Quality of the high vowel

The other question regarding the suffix **-in(En)* is the quality of the high vowel. The general consensus has been that in Proto-Finnic non-initial syllables, there were only short vowels or *i*-diphthongs (cf. Kallio 2012b). Nonetheless, the Finnish suffix *-inen* shows variation between the short *i* in *E*-stem derivatives and a diphthong in *A*-stem derivatives, e.g. *järvinen* 'having lots of lakes' ~ *metsäinen* 'forested'. Such variation has given reason to suggest that the Finnish short *i* in the suffix derives from a LPF long *i* or diphthong *ii*, *ij*, e.g. Fin. *järvinen* < LPF **järviin(en)* / **järvijn(en)* (Rapola 1966: 392–393).

Already Tunkelo (1938: 11–34) pointed out the variation of short and long *i* of the suffix across the Finnic languages. Based on South Estonian, Votic, Ingrian, Ludic and Veps, he notes that a long *i* was present in the penultimate syllable in a position of secondary stress. Also, a somewhat wider distribution is recorded for a long *i* in an unstressed position, which led Tunkelo to conclude that a long non-initial-syllable *i* was present already in Proto-Finnic times. Furthermore, a short unstressed *i* would have begun to develop already during Proto-Finnic

times, whereas a short *i* with secondary stress would have developed individually in different languages (Tunkelo 1938: 31–32).

Tunkelo's analysis of Finnic short and long *i* excludes Livonian due to extensive analogy in the language (Tunkelo 1938: 30–31). Also Posti argues that a LPF diphthong *i̯i* or *iu̯* can not be deduced based on Livonian (Posti 1942: 56–57). Nevertheless, Posti and Kettunen argue that Livonian *i* does originate from LPF diphthongs such as **ai*, **äi*, **oi*, **ui* and **üi* (Posti 1942: 56–62; Kettunen 1947: 30, 34–35). The monophthongisation of the diphthongs is apparent from contemporary Livonian, but the existence of umlaut in certain etymologically front-vowel words necessitates positing allomorphic variation in Proto-Livonian non-initial-syllable diphthongs.

As Kettunen (1947: 34) notes, there are a few words that were affected by umlaut and, therefore, show the Livonian monophthongisation to be relatively old. For example, *re'bbi* 'fox' is reconstructed as Proto-Livonian **repin(en)* based on the umlauted initial-syllable *e* (cf. Kallio 2016: 51), otherwise the Livonian form would be ***rie'bbi* (Kettunen 1947: 34). North Finnic cognates have a different derivative suffix **-oi* (e.g. Fin. *repo*), but based on the South Finnic cognates (e.g. EstN. *rebane*, EstS. *repän*) the word is reconstructed as Proto-Finnic **repäin(en)*, which was borrowed into Saami languages, e.g. SaaN. *rieban*, *rievan* (SSA: repo).[3] In Livonian, a similar case of umlaut is *pe'rri* < **peräin(en)* 'end-; last' (Viitso & Ernštreits 2012: 235–236).

From a phonological aspect, certain partitive plural forms also show umlaut, e.g. *ārga* : *ergi* 'ox' < **härkä* : *härkidä*, *liepā* : *lepți* 'alder' < **leppä* : *leppidä*, *mārga* : *meŗgi* 'pus' < **märkä* : *märkidä*, *pā* : *pēḑi* 'head' < **pää* : *päitä*, *pārna* : *peŗņi* 'linden' < **pärnä* : *pärnidä*, and *piezā* : *pežḑi* 'nest' < **pesä* : *pesidä*.[4] Like *re'bbi*, these words are historically front-vowel stems and the partitive plural forms reflect

3 The other example by Kettunen is *ve'ggi* 'strong' (Kettunen 1947: 34). The stem itself is preserved only as *vä'g* 'strength', which, however, is an analogical expansion of the genitive form into the nominative in a phenomenon called *case syncretism* (Kallio 2016: 51; on case syncretism cf. Grünthal 2010). The adjective itself shows the typical Livonian formation of the *i*-adjective from the strong grade of the stem, e.g. *roudi* 'of iron' (cf. *rōda* : *roudə* 'iron.NOM : .PART').

4 Following Posti (1942: 45), I would also include *lešti* 'flounder.PART.PL' < **lestidä* to this group, since the partitive plural is with umlaut and no analogical endings (in contrast to *pežḑi* and *lepți*). Thus, I would reconstruct the nominative singular *liestā* as **lestä*.

regular Proto-Finnic sound changes (Kallio 2012b: 34–35). Seeing as umlaut did not affect historically back-vowel stems, e.g. *ārga* : *argi* ‘shy’ < **arka* : *arkoida*, it is evident that by the time umlaut was a productive morphophonological feature, only the front-vowel allomorph of the non-initial-syllable diphthong had monophthongised. Furthermore, it should also be noted that the adjectival suffix *-i* indeed originates from a diphthong and not simply a long *i*, because otherwise the Livonian form would be with a reduced vowel, cf. *ri’ggə* ‘rye.GEN’ < **rü’ggə* < **rü’ggi* < **rü’ggī* < **rügī* << **rukiḥẹn* (cf. Viitso 2008: 304–305).

According to Viitso, before the Livonian system of gradation developed, Livonian had no long vowels in non-initial syllables. Unlike the radical gradation in Finnic, in which the weak grade is triggered by closed post-tonic syllables, Livonian gradation is “restricted to words that originally had in their stem-initial syllable a short vowel or a short polyphthong ending in i or u” (Viitso 2008: 303). The morphophonological alternation of Livonian gradation concerns words that have a short rhyme (consisting of a short vowel or diphthong in the nucleus and a coda) in the first stem syllable of strong-grade forms. In the weak grade, the coda is light or absent. Gradation resulted from context-sensitive inflectional changes to stems with a short initial-syllable vowel. Different sets of changes applied to weak and strong grades, so not all stems participate in gradation (Viitso 2008: 302–303).

The Livonian *i*-adjectives in the nominative singular are in the strong grade of the stem. The strong grade has a heavy coda in the first syllable and short nuclear vowels in both syllables of disyllabic words. The heavy coda was formed either by adding weight to the existing coda or by gemination of the onset consonant of the second syllable. The process began with the syncope of **d* or **h* in the onset of the third syllable, the former in open syllables, paving the way for the gemination of intervocalic consonants in the onset of the second syllable: **tubada* > **tuba^{d}a* > **tuba.a* > **tubā* > **tu’bbā* > **tu’bba* > *tu’bbə* ‘room.PART’; **rikkahed* > **rikkahad* > **rikka^{h}ad* > **rikka.ad* > **rikkād* > **rikk̀ād* > **rikk̀ad* > *rikkəd* ‘rich.NOM.PL’ (Viitso 2008: 303–304).

The nominative singular of the *i*-adjectives being in the strong grade indicates that the second-syllable vowel originates from a vowel as heavy as a long vowel. While comparison with Finnic cognates shows that the vowel originates from a diphthong, there are no traces of Proto-Finnic diphthongs in Livonian, which means that non-initial-syllable

diphthongs underwent the same development into a long vowel. Indeed, even if the umlaut of front-vowel stems shows that the *i*-adjectives had allomorphic variation based on vowel harmony, the fact that the adjectival suffix is unambiguously *-i* points to a merger of the allomorphs into a long *i* after umlaut ceased to be productive.

Thus, we would arrive at the following reconstruction for Livonian *i*-adjectives of back-vowel stems: EPF **punańə* > LPF **punain(ęn)* > PL **punįin* > **puniį̂* > **punī* > **pu'nnī* > *pu'nni*. For front-vowel stems, a similar development can be reconstructed: EPF **peräńə* > LPF **peräin(en)* > PL **periin* > **periį̂* > **perī* > **pe'rrī* > *pe'rri*.

In some types, the singular and plural forms have different grades, e.g. *punīz* 'red.GEN', *punīzt(ə)* 'red.PART' (weak) ~ *pu'nnizt* 'red.NOM/GEN.PL' (strong). The weak grade derives from a trisyllabic stem, e.g. **punīzə* < **punįisę*, **punīztə* < **punįista*. The genitive form would, therefore, resemble that of the **EtA*-adjectives, in which the third-syllable vowel is preserved, e.g. *pi'mdə* < **pimedän* (Viitso 2008: 305, footnote 22). The plural form derives from the syncope of the third syllable vowel (cf. Posti 1942: 83) and it can be thus proposed that gemination occurred in disyllabic positions.

2.3. The Finnic context

While the focus of this article is Livonian, it is worth mentioning the Finnic context of the Livonian developments. An almost identical parallel to the Livonian adjective formation is that of Mulgi (South Estonian). In Mulgi, the non-initial-syllable diphthongs are most commonly represented by *i* in a number of derivatives. The most widespread suffix with *i* is the adjectival *mine*-suffix, the first syllable of which carries secondary stress, e.g. *tagumine*, *perämine* 'the hintermost' (cf. Fin. *taaimmainen*, *perimmäinen* id.). Such forms are found in the Halliste, Helme, Karksi and Tarvastu dialects. In the Halliste and Karksi dialects, the vowel is present also in *line*- and *ine*-adjectives, e.g. *suguline* 'relative', cf. EstN. *sugulane* id.; *kuldine* 'golden', cf. EstN. *kullane* id. (Tanning 1961: 35–36). In Mulgi, the range of vowels in non-initial-syllable positions decreases gradually, most consistently in the Halliste and Karksi dialects. For example, *a* and *ä* are reduced to *e* ~ *ə*, e.g. *piᴅə̀meᴅe* 'without having to' < **pitämätä* (Tanning 1961: 33–34; Pajusalu 1996: 78–79).

The front- and back-vowel allomorphs of the reconstructed Livonian suffix parallel the genitive plural allomorphs of Hargla Võro (South Estonian). While the genitive plural suffix in Võro is generally *-ide* regardless of vowel harmony (*iloside* 'beautiful.GEN.PL', *verevide* 'red.GEN.PL'), in Hargla Võro, allomorphs according to vowel harmony are preserved in a position of secondary stress, e.g. *ilus**õi**dõ*, *verev**ei**de* (Iva 2000: 87). Similar phonological developments might also be in the partitive plural of West North Estonian, e.g. *aɢànid* 'chaff.PART.PL' < **akanoita* (cf. Juhkam & Sepp 2000: 60–61). Nevertheless, this wider Southwest Finnic context deserves a study of its own.

3. Materials and methodology

The synchronic aspect of this study deals with attested Livonian. For the compilation of lexical materials for this research, the main sources are Lauri Kettunen's dictionary *Livisches Wörterbuch mit grammatischer Einleitung* (Kettunen 1938, hereafter LW), complemented by Johanna Laakso's *Rückläufiges Wörterbuch des Livischen* (Laakso 1988, hereafter RW), which is based on the former. LW is compiled of language materials from a century ago at a time when Courland Livonian still had dialectal variety. Dialectal variation can shed light on analogical processes that are otherwise levelled in the modern, uniform Livonian language. For example, variation that is not present in newer dictionaries is the analogical extension of *-i* in ordinal numbers in the now extinct variety of West Courland Livonian, e.g. *kuolməz* ~ *kuolmi* 'third', *neļļəz* ~ *neļļi* 'fourth', etc. (Väri 1974: 41–43).

A further source has been the Livonian-Estonian-Latvian Dictionary (Viitso & Ernštreits 2012). The dictionary has headwords that are not present in LW, which is why the two dictionaries complement each other. Also, an appendix to the dictionary is the list of Livonian nominal types compiled by Viitso with the aid of the Livonian Pētõr Damberg (Viitso & Ernštreits 2012: 11, 398–411). This list is almost twice as large as the previous list of types compiled by Viitso (2008: 348–353) and it includes information on nominal types necessary for this study.

Naturally, in studying derivational morphology, a reverse dictionary is the primary tool. Raw statistics can be drawn from the data for a quantitative analysis. Some information, however, is hidden in the

reverse dictionary. For example, dialectal variation is not explicitly indicated in the reverse dictionary's entries. For this reason, I used both RW and LW in unison to combine dialectal variants and to exclude compounds, if the headword exists separately in the vocabulary.

In the literature, Finnic and Uralic suffixes are divided into primary and secondary suffixes (Lehtisalo 1936; Laanest 1975; Hakulinen 1979). Primary suffixes are suffixes that cannot be divided into elements functioning as independent suffixes, whereas secondary suffixes are either compound suffixes or borrowings (Laanest 1975: 133).

Primary Livonian suffixes that are relevant to this study are *-i* < LPF **-in(En)* (Väri 1974: 50; Laanest 1975: 135; Hakulinen 1979: 123–125); *-(i)ji* < LPF **-jA* (Lehtisalo 1936: 63; Laanest 1975: 136; Hakulinen 1979: 126–127); and *-zi* ~ *-ži* < LPF **-isA* (Väri 1974: 91–92; Laanest 1975: 135; Hakulinen 1979: 125–126).

Secondary suffixes in Livonian that are relevant to this study are *-(k)ki* < **-kkA* + **-in(En)* (Lehtisalo 1936: 363–364, 373; Väri 1974: 59; Laanest 1975: 144; Hakulinen 1979: 155–156); *-li* < **-lAin(En)* / **-llin(En)* (Lehtisalo 1936: 155–156; Väri 1974: 73–74; Laanest 1975: 146; Hakulinen 1979: 160–162, 164–167); *-likki* < *-li* + *-(k)ki* (Väri 1974: 75–76); *-limi* < *-li* + *-mi* (< **-mAin(En)*) (Väri 1974: 80; on the second element: Lehtisalo 1936: 86–89; Hakulinen 1979: 169); and *-mi* < **-mA* + **-in(En)* (Lehtisalo 1936: 95–96; Laanest 1975: 146; Hakulinen 1979: 210–211).

First, I collected entries classified as adjectives in RW. This was for the purpose of determining how common the ending *-i* is for the word class. Then, I collected all words ending in *-i* to determine how much the ending is adjectival. These compilations produced raw data for further analysis.

Then, I crosschecked headwords in RW with those in LW to determine the word stem and, therefore, the suffix in question. Some words were initially categorised in one suffixal type, but a qualitative analysis resulted in some words being categorised in a different type. The result of this qualitative screening is presented in Table 1 below. Furthermore, of the words ending in *-i*, I excluded compounds and phonological variants that were listed in the RW. Table 2 presents Livonian headwords after the exclusion of compounds and phonological variants.

4. Results

RW has altogether 1300 headwords labelled as adjectives. Of these, 760 end in *-i* and 540 in anything else. This translates to 58% and 42% of the adjective lexicon, respectively. Therefore, even from a statistical (albeit crude) point of view we can say that the most common ending for adjectives is truly *-i*.

The total amount of all words ending in *-i* is 1580 headwords. The result of such an initial categorisation is presented in Table 1. The abbreviations are as follows: noun = nouns; adj. = adjectives; N = nominals (words that can be both nouns and adjectives, personal names and toponyms); adv./V = adverbs and verbs; pron./part. = pronouns and particles; num. = numerals; other = postpositions, conjunctions, interjections, modifiers of compounds.

Table 1. Livonian headwords ending in *-i* in RW according to parts of speech.

Suffix	Noun	Adj.	N	Adv./V	Pron./Part.	Num.	Other	Total
-i	201	390	50	50	15	8	20	734
-ji	84	7	47	–	–	–	–	138
-(k)ki	106	10	2	4	–	–	–	122
-li	24	152	26	–	–	2	1	205
-likki	20	18	–	–	–	–	–	38
-limi	1	122	–	–	–	–	1	124
-mi	154	14	3	–	–	3	–	174
-zi ~ *-ži*	1	43	1	–	–	–	–	45
Total	591	756	129	54	15	13	22	1580

The largest share is for words ending in *-i* (734 headwords, 46.5%), followed by words ending in *-li* (205 headwords, 13%). Of these, words ending in *-li* are more stereotypically adjectives with 74.1% of the words in the type being adjectives (86.8% with nominals), whereas adjectives in the *i*-type amount to 53.1% (59.9% with nominals). However, a few suffixes are overwhelmingly adjectival even though they are fewer in number, namely, *-limi* (122 adjectives, 98.4%) and *-zi* ~ *-ži* (43 adjectives, 95.5%).

Nouns form the other large share of words, but they are more prevalent with certain suffixes. For example, words formed with the suffix

-(k)ki amount to 122 headwords, mostly nouns (106 headwords, 86.9%). A similar tendency is apparent in words ending in *-(i)ji* and *-mi*. There are a total of 138 headwords ending in *-(i)ji*, out of which there are 84 nouns, seven adjectives and 47 nominals. Six words that are parts of compounds are grouped in the same bracket as nouns in the table. Nouns form the majority of the type with 60.9% of the words (90.6% with nominals).

Words with the suffix *-mi* in RW amount to 174 headwords, of which 154 (88.5%) are nouns. This amount contains words that derive etymologically from both the participle **-min(En)* and the derivative suffix **-mAin(En)*.

The suffix *-likki* is the smallest type of *i*-words and its division as a separate type from *(k)ki*-words is not self-evident. The argument for such a decision is that the ratio between nouns and adjectives is in fact more balanced than that of the *(k)ki*-type: 52.6% of words in the *likki*-type are nouns, whereas the corresponding amount for the *(k)ki*-type is 86.9%. This difference could be indicative of a different semantic function of the suffix. In addition, the suffix *-likki* attaches especially to adjectives as a suffix of its own, meriting its exclusion as a separate type.

Next, I conducted a qualitative exclusion of both compounds and phonological variants. This proceeded as follows:

-i: after the exclusion of 239 compounds and phonological variants, the total amount of words in this type is 495 headwords (311 adjectives, 88 nouns, 32 nominals, 26 adverbs/verbs, 15 pronouns/particles, seven numerals, and 16 of other word classes). The classification of some words is different in this study than in LW and RW. For example, the adjective *igāb ~ igābi* 'langeweile; lange' was marked as N (nominal) in RW, and *īgi ~ ūgi* 'just, correct' as S (noun). Yet, when looking at the example uses of the words, they are clearly adjectival. Also, the categorising of *la'bbi* 'woven to the right' follows that of Vääri (1974: 48) as an adjective.

-(i)ji: when all the variants and compound attributes are excluded, the total amount of headwords formed with the agent noun suffix is 102 words (63 nouns, 33 nominals, 6 adjectives). As there is paradigmatic analogy with *i*-adjectives in all types of agent nouns, I will discuss them in more detail in the next section.

-(k)ki: altogether 38 compounds and variants were excluded in this type. Also, *ka'briki* and *pa'briki* (and their variants) both mean 'common snipe', which is why I grouped them as one headword. In RW, *sūoļki* 'earthworm' was categorised as an adjective, evidently based on speculation on the word's etymology in LW. Some other decisions regarding categorisation were that contrary to Vääri (1974: 75), the noun *vijāliki* 'European fire ant' is included in this type and not as a *likki*-adjective, because it has a variant *vijāli* with the same meaning. The variant *valdziki* 'whiteish' was included as a variant of *va'ldzliki* and thus excluded from this type. In a few cases, the word is both in this and another type: *kēldarikki* ~ *kīeldarikki* (~ *kīelalikki*) 'bellflower (Campanula)' and *mǭmalinki* ~ *mǭmaļikki* 'ladybug (Coccinella)'. The result is that in the *(k)ki*-type, there are 81 words: 69 nouns, seven adjectives, four adverbs and one nominal.

-li: six words of this type were labelled erroneously in RW. For example, *rīemli* 'freudig' was labelled as a noun. After the rearrangement of the words into appropriate categories, the compounds (25) and phonological variants (19) were excluded. This resulted in 124 adjectives, 10 nouns, 24 nominals and two numerals.

-likki: five compounds denoting flower species (Matricaria) were excluded along with seven phonological variants. Also, the word *pipāļiki* was marked as an adjective in RW. In LW, its meaning is 'exceedingly small, small like a doll', although the nominal meaning 'blackfly' is also registered in Pizā. The result was 12 nouns, 13 adjectives and one nominal.

-limi: for words ending in *-limi*, the exclusion of variants merely based on information from RW proved at times insufficient. Firstly, some adjectives were marked as variants, although the variation is between different suffixes, e.g. *kõuvlimi* ~ *kõu(v)vi* 'of birch'. As my approach was to combine phonological variants, I included such instances as their own headwords in the *limi*-type. Secondly, some variants were listed as their own headwords in RW, e.g. *pitkālimi* ~ *pitklimi* 'longish'. These divisions were based on those in LW, which at times gave different etymologies for dialectal variants, e.g. *kinklimi* ~ *künklimi* (LivW.) 'hilly' < *kȭ̄nkaz* ~ *kõnklimi* (LivE.) id. < *kȭ̄nka*. I combined such variants as single headwords.

The two non-adjectives of the type, one noun (*jatklimi*) and one modifier (*põõrlimi-*), can be categorised as adjectives. In LW, *jatklimi* is

'mit schweisstellen besetzt; uneben; *j. kieuž* gespleisster strick; *j. ǭ'rən* ein verlängertes zeugstück, ein stück zeug mit angesetzten stücken' (LW: 85). Also, *põörlimi* is attested only in Sjögren's dictionary in the compound *põörlimi mēļ* 'schwindel' (LW: 284). (The reason *põörlimi* is treated as containing *-limi* and not *-mi* is due to there being only the verb **pȩ̀ǫ̈r* 'to spin, turn (SjW)' (LW: 284) and the adverb *pīerə* 'around', e.g. *p. lā̈'də* 'to go around' (LW: 288) in Livonian without a deverbal *l*-suffix, unlike in Estonian, cf. *pöörlema* 'to turn'). Thus, they are both treated as adjectives in this study. In total, 13 phonological variants and three compounds were excluded, giving the final amount of 108 words ending in *-limi*, all adjectives.

-mi: in this type, there are 21 compounds and 39 phonological variants. In LW, *sõ'glimi* 'sieving; warty'is marked as a nominal, although this is a merely a case of two homonymous lexemes, which are divided into separate headwords in this study. Followingly, there are 115 headwords: 103 nouns, 10 adjectives, one nominal and one numeral.

-zi ~ -ži: in this type, there were eight compounds including their phonological variants and seven phonological variants. I included adjectives with Latvian prefixes as compounds, e.g. *bäs-joudzi ~ bäz-joudzi* 'feeble'. The resulting amount was 26 adjectives, the personal name *Ä'dži* (diminutive of *Ädu* 'Hedwig'), and the modifier *taļži-* 'winter-' in the compound *taļš-pivād ~ taļži-pivād* 'Yule' < **talvis-pühät*.

A total of 468 compounds and variants were thus sieved from the initial amount of 1580 headwords (29.6%). The result of the qualitative exclusion of variants and compounds is presented in Table 2. All the 603 adjectives along with nominals, pronouns and numerals ending in *-i*, numerals ending in *-mi* and all words ending in *-li* and *-likki* (688 words in total) are listed in the Appendix to this article (accessible at: https://doi.org/10.23673/re-520).

Over half of all words are adjectives (54.2%) and the largest group of words is the *i*-type (44.5%). Within the *i*-type, adjectives make up the majority (62.8%). These I have divided into two categories: adjectives with primary (= etymological), and secondary (= analogical) *-i*. There are 250 adjectives of the former, and 61 of the latter category (cf. Appendix). I discuss the justification for this division in the next section.

Table 2. Livonian words ending in *-i* according to parts of speech (without compounds and phonological variants).

Suffix	Noun	Adj.	N	Num.	Adv./V	Pron/Part.	Other	Total
-i	88	311	32	7	26	15	16	495
-ji	63	6	33	–	–	–	–	102
-(k)ki	70	7	1	–	4	–	–	82
-li	9	122	24	2	–	–	–	157
-likki	12	13	1	–	–	–	–	26
-limi	–	108	–	–	–	–	–	108
-mi	103	10	1	1	–	–	–	115
-zi ~ *-ži*	1	26	1	–	–	–	–	28
Total	346	603	93	10	30	15	16	1113

Words in the *li*-type make up the second largest suffixal type, in which the largest word class are adjectives (77.7%). For 30 adjectives, the suffix varies with other adjectival endings. Whether the suffix derives from Proto-Finnic **-lAin(En)* or **-llin(En)*, is not discernable from Livonian itself. For example, *a'bli* 'helpful; help' can derive either from **apulain(ẹn)* (cf. Fin. *apulainen*) or **apullin(ẹn)* (cf. EstN. *abiline*). In most cases with *a*-stems, the suffix attaches to the stem's weak grade, e.g. *kǭrali* '-coloured' < **karvallin(ẹn)*, *sīlmali* '-eyed' < **silmällin(en)*. With *E*-stems, the suffix attaches to what synchronically is the genitive form, e.g. *lapsli* 'childish' < **lapsẹllin(ẹn)*, *sūrli* 'boastful, arrogant' < **suurẹllin(ẹn)*.

Most of the words in the *(k)ki*-type are diminutives, either as later transparent derivatives or etymologically reconstructed ones. This is true also for the adjectives in this type, of which three are etymological diminutives: **lūk̆ki* 'short' < PF **lühük̆käin(en)*; *piški* 'small' < PF **pisik̆käin(en)*; and *vā'ki* 'small' < PF **vähäk̆käin(en)*. Four are later derivatives (*lipki* 'with blades of grass', *no'pki* 'sooty', *nūoṛki* 'young', *ǭ'ţški* 'narrow'), although the West Courland Livonian form *no'pki* 'sooty' is irregular.

The suffix *-likki* shows a variety of features that indicates its heterogenous origin, more so with nouns. Two names for fungi, *ežāḷikki* (~ *ežā-sēṇ*) = *pežāḷikki* 'orange milkcap (Lactarius deterrimus)' and *kǭṛaḷikki* 'an unedible mushroom' are the clearest examples of the suffix. Plant names with this suffix are less obviously part of this type.

The clearest case of the suffix would be *ve'ŗžliki* (~ *ve'ŗžiji-puţkəz* ~ *ve'ŗži-puţkəz*) 'quaking grass'. Others such as *kīelalikki* ~ *kēldarikki* ~ *kīeldarikki* (~ *kēldariš* ~ *kēldarišši* ~ *kīeldarišši*) 'bellflower (Campanula)' and *se'ḍliki* ~ *se'ḍliki-pū* (~ *se'ḍlik-pū* ~ *se'dliṇ-pū* ~ *se'ddəl-pū* ~ *tse'ddəl*) 'European spindle (Euonymus europaeus)' (and, therefore, also *se'dliki* ~ *ze'ddəl* (LivW.) 'note') could also be in the *(k)ki*-type. Two Latvian loanwords could also be in the *(k)ki*-type, namely, *kumāļikki* 'chamomile (Matricaria discoidea)' ← Lat. *kumelīte* id., and *kuţālikki* 'crab louse' < Liv. *skutīļ* id. ← Lat. *skutele* ← Ger. *schuttel*. Etymologically, even *sižālikki* ~ *šizālikki* ~ *šižālikki* (LivW.) 'lizard' could be in the *(k)ki*-type, seeing as it is reconstructed as **sisalikko* (SSA: sisilisko). The insect name *mǭmaļikki* ~ *mǭmaļinki* 'ladybug (Coccinella)' shows variation with the suffix *-likki* and the Courland Livonian *pāvaļikki* 'sunshine; sun' varies with Salaca Livonian *päuki* id. Therefore, the treatment of the suffix *-likki* as its own type is, based on nouns, only slightly justified.

A stronger argument for the suffix is, however, based on adjectives. Most of the adjectives are colour names, e.g. *brūnliki* 'brownish' or *pu'nliki* 'reddish'. The only adjective with recorded variation with other suffixes is *jurgliki* (LivW.) ~ *juŗglimi* ~ *jurgli* (SjW) 'exceedingly strong, rough'. Thus, the suffix is not merely an extension of *-(k)ki*, but a type of its own. Furthermore, it can be argued that the suffix emerged as a "docking suffix" to substitute Low German *-lik*, cf. the Estonian adjective suffix *-lik* (Laakso 2004: 177), seeing as all the German translations of the colour adjectives are formed with this suffix (cf. Appendix). The suffix in Livonian would, therefore, be contact-induced and have attached first to adjectives of this type.

The Livonian suffix *-limi* is secondary, combining the suffixes *-li* < **-llin(En)* / **-lAin(En)* and *-mi* < **-mAin(En)*. The second element is present also in the four superlative adjectives (on which see below). However, the suffix *-limi* indicates similarity or proximity (Vääri 1974: 80). While the two elements of the suffix themselves originate in Proto-Finnic, it is most likely that the suffix developed separately in Livonian, either from **-llimAin(En)* or as an even later combination of *-li* and *-mi*. The latter alternative would be supported by synonyms that vary between *-li* and *-limi* and show no difference in meaning, e.g. *jurglimi* ~ *jurgli* 'unusually strong or rough', *suoļmlimi* ~ *suoļmli* 'gnarly', *te'blimi* ~ *te'bli* 'ill', *usklimi* ~ *uskli* 'devout, religious' (Vääri 1974: 80).

Ten Latvian loanwords, around half of the Latvian loanwords in the type, show a substitution with this suffix: *gro'blimi* 'uneven, bumpy' ← *grubulains*, *kro'blimi* 'uneven, rough' ← *kroblains*, *liezlimi* 'even, flat' ← *lēzns*, *mīžlimi* 'of drill (fabric)' ← *mizlant*, *mārlimi* 'intermediary' ← *mērens*, *pintsklimi* (SjW) 'shaggy' ← *pinckains*, *rantlimi* ~ *rāntlimi* (SjW, LivW.) 'curly, dashed' ← (Dundaga Latvian) *rantāns*, *sprūoglimi* (SjW, LivW.) 'curled, curly' ← *spruogains*, *tsaklimi* 'spikey, jagged' ← (Dundaga Latvian) *tsakāns*, and *tsäklimi* 'braided' ← *cekulains*. This would suggest that the suffix *-limi*, as *-likki*, was contact-induced and influenced by Latvian derivative suffixes with nasal elements.

Although the suffix most likely developed separately in Livonian, the word *nīžlimi* 'of drill (fabric)' suggests that the suffix developed at least before the analogical development of the suffix *-(ə)z*, because the stem ***nīž* 'heddle' is not preserved as such, the current singular form being a back formation of the plural form: *nīdəz* < *nīdəd* 'heddle : heddles' (cf. O'Rourke 2024: 171–172).

The majority of words in the *mi*-type are nouns, more precisely, action nouns used to form the fourth infinitive, e.g. *jelāmi* 'life, living' < *je'llə* : *jelāb* 'to live', *sīemi* 'eating' < *sīedə* 'to eat', LivE. *sõ'gļimi* 'sieving' < *sõ'gļə* 'to sieve' (Kettunen 1947: 85). The etymology and formation of such nouns is transparent and, therefore, they are excluded from this study. I present ten adjectives, two nouns and one numeral that are included in this type.

The numeral *e'žmi* ~ *e'ižmi* ~ *ē'žmi* 'first' contains the etymological LPF suffix **-mäin(en)*. This suffix is discussed by Vääri (1974: 86–87) in connection to the superlative adjectives he mentions: *nūoŗimi* 'youngest', *sūŗimi* 'largest', *piškimi* 'smallest' and *vaņīmi* 'oldest'.

In LW, one word in this type, *sūŗimi* 'larger; the largest' is a nominal. Adjectives are *a'rtəmi* (*mǭ)* 'loose (ground)', *i'ldimi* 'upper', *i'llimi* ~ *ü'llimi* 'the uppermost, most distinguished', *kanktimi* 'the stiffest, tightest', *mōzrimi* 'grained', *ni'mtimi* 'nameless', *nī'grəmi* 'disgusting', *piškīmi* 'smaller', *plaņləmi* ~ *plaņgləmi* 'mottled, speckled', and *sõ'gļimi* ~ *si'glimi* ~ *sü'glimi* 'warty'. Of these, *plaņləmi* ~ *plaņgləmi* ← Lat. *plankains* shows a substitution pattern seen in *limi*-adjectives, although the penultimate vowel is reduced.

The word *ni'mtimi* is a rudiment of the Finnic caritive suffix **-ttOin* : *-ttOmAn*, cf. Fin. *nimetön* : *nimettömän* id. There are only a few other

vestiges of the suffix, e.g. *joutəm* 'poor' (LW: 92), *kūltəm* 'deaf' (LW: 171), **mi'erətom* 'restless' (LW: 223), *u'ntəm* 'sleepless' (LW: 454). The adjectival use of *ni'mtimi* in the phrase *ni'mtimi suoŗm* 'index finger' has evidently reinforced the adjectival semantics of the word, leading to the addition of the adjectival suffix *-i* to the word. Thus, it can be argued that this word in fact belongs to the *i*-type.

Of the 26 adjectives in the *zi~ži*-type, 14 are without suffixal variation. That is, they have only forms that end in *-zi ~ -ži*. These words are: *kandzi* 'loadable, stable, stiff; patient, agreeable', *kardzi ~ kartsi* 'timid', *ki'ldzi* 'sparkling; chinking', *nā'dzi* 'seeing', *ouvzi ~ ouzi ~ ?o'uvzi* 'glorious, etc.', *pī'ldzi* 'steady', *rūmzi* 'spacious, roomy', *sā̆dzi* 'convenient', *si'ldzi* 'shiny', *sündzi* (SjW) 'becoming, suitable', *tā'dzi* 'noticeable, well marked', *tē'd'ži ~ tā'd'ži* 'striking, easily recognisable', *virgzi* 'wakeful', and *ä'dzi* 'hasty'.

The other 12 adjectives show different patterns of variation: *armzi ~ armsə ~ ārmaz* 'dear', *ilmzi ~ ilməz* 'enormous; earthly', *irmzi ~ irməz* 'terrible', *je'lzi ~ je'lsi ~ je'ldzi ~ je'lləz ~ je'lliz* 'alive', *joudzi ~ joudzə* 'strong', *ka'rdzi ~ ka'rdz(ə)* 'rough', *kūldzi ~ kūldzli* 'obedient', *līebzi ~ līebdə ~ līemzi ~ līebzən* 'mild', *līemži ~ līemi* 'mixed with phloem', *õ'ļdzi ~ õ'ldzə* (*~ ü'lzə ~ ü'ldzi*) 'shiny', *tu'ldzi ~ tu'ldzə* 'future, following', and *vȯndzi ~ vuonzi ~ vȯnzi ~ vȯndzə* 'happy, blissful'. I will discuss this type in the next section.

5. Secondary *-i* in Livonian

As can be seen from the previous section, numerous different word classes end in the suffix *-i*, either with or without additional elements. The adjectival use of *i*-suffixes is productive and as can be seen in many examples, analogical from a historical perspective. In this section, I discuss mechanisms of *-i* expanding analogically towards that of a general marker for adjectives in different word types. I define this analogical ending as a 'secondary *-i*' and propose explanations for the different paradigms.

5.1. Secondary *-i* in adjectives

The secondary nature of *-i* has been addressed occasionally in the literature. Kettunen notes this in the case of individual adjectives, e.g. *õigi* ‘right, just, correct’ or *vaļmi* ‘ripe, ready’. In other cases, Kettunen reconstructs the Livonian adjective with a Proto-Finnic suffix, e.g. *kūmi* ‘glowingly hot’ < **kuumaįnęn*, cf. Fin. *kuuma*, EstN. *kuum* id.; *lemmi* ‘warm’ < **lämminen*, cf. Fin. *lämmin* id., EstSW. *lämme* ‘suffocatingly hot’; *li’bḑi* ‘smooth; slippery’ < **-inen*; *madāli* ‘low; shallow’ < **matalaįnęn*; *ma’gḑi* ‘tasty, sweet’ < **makętaįnęn*. This explanation is not universal, seeing as *pī’emdə ~ pī’emdi* ‘soft’ and *pi’mdə ~ pi’mdi* ‘dark’ are reconstructed as **pehm(e)da* and **pimeta*, respectively. And in some cases, Kettunen merely notes the irregular development of the word, e.g. *līti* ‘short’, cf. Fin. *lyhyt* id.

Vääri (1974) also discusses suffixal variation in his doctoral dissertation. However, while he does give a thorough overview of Livonian derivative suffixes, also including forms with a secondary *-i*, he mentions the analogy of *i*-adjectives only a few times in passing. A preliminary explanation of analogy is described by Vääri with regard to pronouns and ordinal numerals. The pronouns *mi’nni* ‘mine’, *si’nni* ‘yours (sg.)’, *tä’mmi* ‘his/hers’, *mä’ddi* ‘ours’, *tä’ddi* ‘yours (pl.)’, *nänti* ‘theirs’, *mingi* ‘something, someone’ and *u’mmi* ‘one’s own’ are secondary and formed on the analogy of *i*-adjectives (Vääri 1974: 48, 51). In connection to the West Courland Livonian ordinal numerals *kuolmi* ‘3rd’, *neļļi* ‘4th’, *vīdi* ‘5th’, *kūdi* ‘6th’, *seismi* ‘7th’, *ī’dəkšmi* ‘9th’, *kimmi* ‘10th’, *sa’ddi* ‘100th’ and *mitsmi* ‘how many (adj.)’, Vääri explains these forms to have been developed on the model of *i*-adjectives such as *pu’nni* ‘red’ < **punainen*, emphasising that the ordinal numerals themselves did not originally have such an ending (Vääri 1974: 41–42). This is an easily agreeable conclusion, and I would merely add that the motivation for such a development was the reanalysis of the original ordinal suffix *-(ə)z* as a nominal suffix (cf. O’Rourke 2024), evidently parallel to the reanalysis of *-i* as an adjectival suffix. Also, why I call Vääri’s explanation preliminary is that I would expand on this suggestion by explaining many more cases of *i*-adjectives as having derived via analogy.

Analogical forms can be deduced from a number of factors, such as umlaut in historically front-vowel stems, e.g. *pe’rri* ‘last’ < LPF

**peräin(en)* or *perni* '(made of) linden' < LPF **pärnäin(en)*. Forms such as *pie'rri* and *pärni* are also attested, but they are influenced by the synchronic stems *pierā* and *pārna*, respectively. This explanation applies also to forms that have no variation with umlaut such as *lieppi* '(made of) alder', from *liepā*. The partitive plural of the stem, *lepţi*, indicates that umlaut took place also in this word, so the regular nominative singular of the adjective would be ***leppi*.[5]

Adjectives with historical adjectival suffixes are also revealing, namely Livonian adjectives with the Finnic suffixes **-EtA*, **-pA* and **-isA*. A common feature of all the suffixes is their attachment to two-syllable stems. The attached suffix would have created three-syllable derivatives, e.g. **joutu-isa*. As the **a* in non-initial syllables apocopated or was reduced after the second syllable (Kallio 2016: 55), the regular outcome for such a word is precisely the attested form *joudzə*. In theory, the variant *joudzi* could derive from **joutuisain(ęn)*, but such an explanation for all the *i*-adjectives ignores the overwhelming evidence of *-i* spreading secondarily.

The explanation of analogical *-i* offers a more economic explanation than that of Kettunen (1947: 28–29, 34, 61–63), that is, that *a* sporadically became *i* via reduced *ə*. Especially the word *lä'bḍi* 'shovel' is used as an example in the literature. Posti argues that *a* > *i* was influenced by a preceding palatalised consonant or *j* (Posti 1942: 49–50). This would explain such cases as *lä'bḍi* < **lä'bḍə* < **labida* or the partitive plural ending (cf. also 5.2. below). Such cases of a secondary *-i* for nouns are, however, rare, the other examples being *ma'gḍi* 'malt' and *õ'bdi* 'silver'. The former varies with *ma'gdəz*, which is in itself an extension of the adjective *ma'gḍə* ~ *ma'gḍi* 'tasty, sweet'. The latter varies with *õ'bdə*, and is homonymic with *õ'bdi* 'silvery' and features no palatalised consonant. It is thus more compelling to argue that the *-i* in adjectives

5 The relative age of umlaut reveals curious cases of Livonian words. The word *serni* '(made of) ashwood' is an adjectival derivative of *sārna* 'ashwood'. Kettunen suggests the noun to be analogical in place of ***särn* : *särnəd* (cf. Fin *saarni* : *saarnet* id.) and to have been contaminated with *pārna* 'linden' (LW: 394). However, the umlauted form of the adjective shows that already during Proto-Livonian, the noun was **särnä*, in which case the adjectival variant *särni* is analogical. Also, there is the possibility that Proto-Livonian **särnä* is not analogical, in which case it would be an instance of the word not participating in the development of secondary *E*-stems (Aikio 2012, 2015).

such as *pi'mdi ~ pi'mdə* 'dark' or *li'bḍi ~ li'bdə* 'smooth; slippery' developed via analogy of historical **in(En)*-adjectives.

The Livonian understanding of the suffix *-i* to be adjectival is also apparent from adjectives that semantically wouldn't require an adjectival ending, such as *kūmi* 'glowing hot' < **kuuma* or loanwords that are substituted morphologically (on morphological substitution, cf. Junttila 2015: 139–140), such as *brūni* 'brown' ← Low Ger. *brûn* and *zermi ~ zirmi* 'old, grey' ← Lat. *sirms* (cf. also Vääri 1974: 51).

The adjectival development of the suffix is also indicated by *nī'grəmi*, which varies with *nī'grəməz*, *nī'grəm*, *nī'gər*, and (LivW.) *nī'grə*. As argued in O'Rourke (2024), the suffix *-(ə)z* has some indications of becoming a nominative singular suffix for nouns. Such a tendency was evidently reinforced by a coterminous development of *-i* into an adjectival ending in such word pairs as *nǭ'gəz* 'leather' and *nǭ'gi* 'leathery'. While the variants *nī'grəmi ~ nī'grəməz* are both adjectives, they point to *-i* developing secondarily in some adjectives. Another example of such a paradigmatic reanalysis would be the analogical form *vaḷmi ~ valməz*. In both cases, the form with *-i* has developed alongside that with *-əz*, evidencing the analogical nature of adjectival *-i*.

The motivation for such an analogical spread of *-i* can be explained in a similar way to that of the *(ə)z*-nouns (cf. O'Rourke 2024), that is, by both internal motivation and external influences. The internal motivation would have been case syncretism that developed in the majority of Livonian nominal types, whereby extensive apocope led to the blurring of distinctive formal categories in nominal declension, for example, between the nominative and genitive singular (on case syncretism, cf. Grünthal 2010).

As the nominative and genitive didn't merge in all nominal types, a formal way to distinguish between the cases remained. One such type was the adjectival type ending in *-i*, declined in the genitive as *-iz*. The reason why this type spread mainly to adjectives (but cf. also next subsection) is provided by external, that is, Latvian influence. Latvian and Livonian have influenced each other grammatically (Ernštreits & Kļava 2014), one example being the development of Livonian *-(ə)z* towards a nominal marker of the nominative singular (O'Rourke 2024). Also in the case of adjectives, Latvian provided a model for the development of a separate adjectival marker. Latvian nominal declension has separate paradigms for nouns and adjectives, the latter having indefinite and

definite declensions (Fennell & Gelsen 1980: 51, 113). While Livonian does not have definiteness as a feature, the distinction between nouns and adjectives still influenced Livonian nominal development.

5.2. Secondary *-i* in *-(i)ji*

The agent noun suffix *-(i)ji* derives from Proto-Finnic **-jA*. In Livonian, the variant *-ji* attaches mostly to *a*-stem verbs, e.g. *salāji* 'thief', and with historical *E*-stem verbs, the variant *-iji* is used (cf. Rapola 1966: 405–407). The agent noun can be formed from any verb, as it is a standard part of the paradigm (Viitso 2011: 211).

The declension paradigm of agent nouns shows analogical variation. Viitso divides agent nouns into three main types, 186, 187, 188 and 189 (Viitso & Ernštreits 2012: 407–408). Type 189 is represented by only two compound words: *si'zzəltuļļi* 'immigrant' and *tagāntuļļi* 'descendant' (Viitso & Ernštreits 2012: 294, 315). The three main types in question share a similar paradigm in the singular, namely, that the oblique stem has *-z*, e.g. *sēji* : *sējiz* 'eater.NOM : .GEN'. This is evidently formed on the analogy of etymological *i*-stem words, e.g. *nai* : *naiz* 'woman.NOM : .GEN'.

In the plural paradigm, however, there is variation. Types 186, 188 and 189 have forms with an analogical plural, e.g. *sējizt* ~ *sējid* : *sējiži* ~ *sējidi* 'eater.NOM/GEN.PL : .PART.PL'. Type 187, on the other hand, is formed only with *-d*, e.g. *kēratijid* : *kēratijidi* 'writer.NOM/GEN.PL : .PART.PL'. Traditional explanations favour reconstructing such agent nouns in Livonian with **-in(En)*, e.g. *kazāi* 'abscess' < **kasvaja(inẹn)* (LW: 109). While this explanation may be true in some cases, it is in fact more economical to consider the plural forms with *-d* to be original, as in *kazāi* : *kazāid* vs. *kazāji*: *kazājist* (LW: 109), since forms with *-d* exhibit regular sound changes of the agent noun suffix.

Regular sound changes developed the agent noun suffix into *-j*, since the suffix is mostly attached to two-syllable words. In such an environment, the **a* in the third syllable underwent reduction or apocope, e.g. *jumāl* 'God' < **jumala* (Viitso 2008: 306). Rudiments of this regular sound change remain in altogether nine words: *(lēḍ-)ētai* 'machine gun, lit. bullet thrower' < **heittäjä*, *jelāi* 'animal' < **eläjä*, *kazāi* 'abscess; tumor' < **kasvaja*, *kīndai* 'plower' < **küntäjä*, *kuodāi* 'pet' < **kotaja* (denominal from **kota* 'house'), *pāinai* 'nightmare' < **painaja*, *pietāi*

'traitor' < **pettäjä*,[6] *salāi* 'thief' < **salaja*, *tapāi* 'killer' < **tappaja*, and *vie'd-lakāi* ~ *vǭ'lakā'i* ~ *vǭ'lakāi* 'skinny herring'. However, even in these cases, analogical forms have developed, e.g. *kindāji*, *pāinaji*, *tapāji*, *salāji*, *vie'd-lakāji*. Phonologically the *-i* has been explained by Posti (1942: 49–50) as *a* > *i*, influenced by the preceding *j*. However, the sound change more probably had an intermediary reduced vowel *ə*, as argued by Kettunen (1947: 28, 29; cf. also the discussion of *lä'bḍi* above).

There are a few adjectives with a synchronic *-ji*. These words are *jeiji* 'icy', *mǭ(j)i* 'earthen', *rǭ'(j)i* 'wealthy', *vǭ'ji* 'waxy', and *vǭ'(j)i* 'foamy'. In these words, an epenthetic *j* has developed between the stem and the suffix, which has created homonymy with the original agent noun suffix **-ja* following the sound change **a* > *ə* > *i*. At first, such homonymy would have been with monosyllabic stems, e.g. *jūoji* 'drinker', from which the ending *-ji* would have spread to disyllabic stems, creating the variation mentioned above (cf. also Kettunen 1947: 89).

The overlap would have been enabled by the semantic function of the agent noun in Livonian. The Livonian form takes the function of the present participle in addition to that of the agent noun, but it can also express a persistent feature or a continuous activity, thus expressing also adjectival meaning (Lehtisalo 1936: 63). Indeed, of the 102 headwords in LW, 63 have only a nominal meaning and 6 only an adjectival meaning, but 33 can be both nouns and adjectives. This semantic ambiguity would have been enhanced by the analogical development of the agent noun suffix into *-ji* based on the model of the adjectives ending in *-ji*. This would in turn explain the paradigmatic similarity of agent nouns and *i*-adjectives.

6. Summary

In this study, I presented a diachronic overview of the Livonian adjectival suffix *-i* < **-in(En)*, followed by a synchronic analysis of the distribution of *-i* in Livonian.

6 Kettunen explains this form to derive from *pietāji* (LW: 301), which I argue here to be the other way round.

In the diachronic overview, I presented the literature on the Finnic suffix **-in(En)* and how its reconstruction matches the Livonian form. The reconstruction of the suffix based on Livonian indicates that in Proto-Livonian, the suffix had allomorphs depending on vowel harmony. The Livonian gradation pattern also points to the suffix having contained a diphthong that became monophthongised, and shortened once the alternation between the strong- and weak-grade stems developed. As a result, the nominative of Livonian *i*-adjectives developed into the strong-grade form. These features can be compared to similar phonological developments in neighbouring Finnic languages, suggesting a common Southwest Finnic origin for these developments. However, as mentioned, this aspect deserves a study of its own.

For the synchronic analysis, I compiled both adjectives in general as well as words ending in *-i* from Kettunen's dictionary using the reverse dictionary compiled by Laakso. The results show that the most common ending for all adjectives in Livonian is *-i* and that the most common word class of words ending in *-i* is adjectives. The most common ending for *i*-adjectives is the primary suffix *-i*, followed by the secondary suffixes *-li* and *-limi* that contain the primary suffix *-i*.

A quarter of adjectives with the primary suffix *-i* show that the suffix analogically spread later to those words, which is why it is called in this study a 'secondary *-i*'. The secondary *-i* can be explained through both internal motivation and external influences. The internal motivation would have been the need to distinguish between nominative and genitive cases that became syncretised after extensive apocope. The external influence was provided by Latvian, a language that has separate declension paradigms for nouns and adjectives.

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Abbreviations

EPF – Early Proto-Finnic, EstN. – North Estonian, EstS. – South Estonian, EstSW. – Southwest Estonian, Fin. – Finnish, Ger. – German, Lat. – Latvian, Liv. – Livonian, LivE. – East Courland Livonian, LivS. – Salaca Livonian, LivW. – West Courland Livonian, Low Ger. – Low German, LPF – Late Proto-Finnic, MPF – Middle Proto-Finnic, PF – Proto-Finnic, PL – Proto-Livonian, SaaN. – North Saami, SjW – Sjögren-Wiedemann's dictionary

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Kokkuvõte. Patrick O'Rourke: Liivi *i*-adjektiivide analoogiline areng. Käesolevas artiklis esitletakse nii diakrooniline kui sünkrooniline seletus sufiksi *-i* esinemisele liivi adjektiivides. Sufiks on valdavas osas liivi adjektiividest ja enamasti saab seda tuletada otse algläänemeresoome sufiksist **-in(En)*, näiteks kuraliivi *roudi* 'raudne' < **rautain(ęn)*.

Mõnes liivi adjektiivis on käsitletav sufiks aga sekundaarse iseloomuga ja seetõttu analoogiline, näiteks kuraliivi sõnas *madāl ~ madāli* 'madal'. Seda tüüpi sekundaarse sufiksi levimine viitab sufiksi laienenud kasutusele üldise omadussõnalise tunnuse suunas. Motivatsiooni sellisele muutusele on võibolla pakkunud keelesisene vajadus eristada käändevorme pärast ulatuslikku lõpu- ja sisekadu, ning pikaaegne ja sügav kontakt läti keelega ehk indoeuroopa keelega, milles on eraldi paradigmad nimi- ja omadussõnadele.

Märksõnad: liivi keel, ajalooline keeleteadus, morfoloogia, adjektiivid, analoogia, keelekontaktid