Отдельный оттиск
Reprint

АКАДЕМИЯ НАУК ЭСТОНСКОЙ ССР
ACADEMY OF SCIENCES OF THE ESTONIAN S. S. R.

СОВЕТСКОЕ ФИННО-УГРОВЕДЕНИЕ
SOVIET FINNO-UGRIC STUDIES
SOWJETISCHE FINNISCH-UGRISCHE SPRACHWISSENSCHAFT
LA LINGUISTIQUE FINNO-OUGRIENNE SOVIETIQUE

X 1974 3

ТАЛЛИН
TALLINN

СОКРАЩЕНИЯ * ABBRÉVIATIONS

ВЯ — Вопросы языкознания, Москва
КЭСК — В. И. Лыткин, Е. С. Гуляев, Краткий этимологический словарь коми языка, Москва 1970
ССКЗД — Сравнительный словарь комизырянских диалектов, Сыктывкар 1961
СФУ — Советское финно-угроведение, Таллин
ТМарНИИ — Труды Марийского научно-исследовательского института языка, литературы и истории, Йошкар-Ола
ТМордНИИ — Труды Мордовского научно-исследовательского института языка, литературы, истории и экономики, Саранск
AASF — Annales Academiae Scientiarum Fennicae, Helsinki
ACUT — Acta et Commentationes Universitatis Tartuensis, Tartu
ALHung. — Acta Linguistica Academiae Scientiarum Hungaricae, Budapest
CIFU — Congressus internationalis fenno-ugristarum, Budapest 1963
CSIFU — Congressus secundus internationalis fenno-ugristarum I, Helsinki 1968
CTIFU Thesen I—II — Congressus tertius internationalis fenno-ugristarum. Thesen I—II, Tallinn 1970
EK — Eesti Keel, Tartu
EKirj. — Eesti Kirjandus, Tartu
ESA — Emakeele Seltsi Aastaraamat, Tallinn
ETATÜ — Eesti NSV Teaduste Akadeemia Toimetised. Ühiskonnateadused, Tallinn
ETATÜS — Eesti NSV Teaduste Akadeemia Toimetised. Ühiskonnateaduste Seeria, Tallinn
FUF — Finnisch-ugrische Forschungen, Helsinki
FUFAnz. — Anzeiger der Finnisch-ugrischen Forschungen, Helsinki
JSFOu — Journal de la Société Finno-ougrienne, Helsinki
KK — Keel ja Kirjandus, Tallinn
KKIU — Eesti NSV Teaduste Akadeemia Keele ja Kirjanduse Instituudi Uurimused, Tallinn
KSz — Keleti Szemle, Budapest
LSFU — Lexica Societatis Fenno-Ugricae, Helsinki
MNy — Magyar Nyelv, Budapest
MNyj. — Magyar Nyelvjárások, Budapest
MSFOu — Mémoires de la Société Finno-ougrienne, Helsinki
MSzFE — A magyar szókészlet finnugor elemei I—II, Budapest 1967—1971
NyÉrt. — Nyelvtudományi Értekezések, Budapest
NyK — Nyelvtudományi Közlemények, Budapest
Nyr. — Magyar Nyelvőr, Budapest
SF — Studia Fennica, Helsinki
SKES — Suomen kielen etymologinen sanakirja I—IV, Helsinki 1955—1969
SKST — Suomalaisen Kirjallisuuden Seuran Toimituksia, Helsinki
TESz — A magyar nyelv történeti-etimológiai szótára I—II, Budapest 1967—1970
TL — Tietolipas, Helsinki
TRÜT — Tartu Riikliku Ülikooli Toimetised, Tartu
UAJb. — Ural-Altaische Jahrbücher, Wiesbaden
UAS — Indiana University Publications, Uralic and Altaic Series, Bloomington — The Hague
UJb. — Ungarische Jahrbücher, Berlin—Leipzig
UUÅ — Uppsala Universitets Årsskrift, Uppsala
Vir. — Virittäjä, Helsinki

TIIT-REIN VIITSO (Tartu)

ON THE PHONOLOGICAL ROLE OF STRESS, QUANTITY, AND STØD IN LIVONIAN *

Any phonological transcription besides reflecting all the relevant distinctions proper to a language must also grant the possibility of the most meaningful description of its productive morphological processes. Proceeding from this demand the problems connected with the phonological transcription of the complicated quantity system and stød are crucial for Livonian. Unfortunately, not quite enough is known about Livonian stød whose characteristic like that of the Latvian broken tone (*lauztā intonācija*) and of Danish stød is a period of laryngealization in the second half of the syllable nucleus.[1] The stress in Livonian cannot be left out of consideration as any formulation of the problems of quantity and stød depends on how one interprets the dynamic stress.

The article is limited to the south-western subdialects of East Livonian as spoken in Sīkrags (*Sikrõg* in the former Standard Livonian), Mazirbe (*Ire*), Košrags (*Koštrõg*), Pitrags (*Pitrõg*), Saunags (*Sānag*), and Vaide (*Vaid*) of the Latvian S.S.R. The problems dealt with here, however, are exactly the same in other Livonian dialects and subdialects.

1. Stress. Monosyllabic conjunctions (e. g. *ja* 'and', *un* 'and', *ka* 'also', *ku* 'when, if'), and short pronouns (cf. *ma* 'I', *sa* 'thou', *ta* 'he, she, it', *ne* 'they, these' vs. ˈ*minā* 'I', ˈ*sinā* 'thou', ˈ*tämā* 'he, she, it'. ˈ*nämā* 'they') have no stress. If a word begins in a stem or in an unstressed prefix (*iz-* ~ *is-*, *pa-*, *uz-* ~ *us-*) then the first syllable of the stem has the primary stress, cf. *izˈumblə* 'to embroider', *uzˈreiz* 'at once'. If a word begins in a stressed prefix then the prefix has the primary stress. The first syllable of a stem, nevertheless, is stressed even in words beginning in a stressed prefix or when it is a nonfirst component of a compound; this stress, however, is somewhat weaker than the primary stress, being transcribed here as [ˇ], cf. ˈ*aˇtuodə* 'to bring back', ˈ*nuˈoˇlädə* 'to go away', ˈ*sᵘodāˇvä'o* '(army) troop' < ˈ*sᵘodā* 'war' + ˈ*vä'o* 'might'. Similarly, the nominal derivational suffix *-nika* is every-

* Thanks for several valuable remarks concerning an earlier version of this paper which was given at the Symposium on Finnic Philology 1973, in Tallinn, are due to Professor Lauri Posti.

[1] For a picture of the present state of knowledge about the stød and the related pitch distinctions in Livonian cf. the data and discussion in Kettunen 1925 (kymographic analysis), Posti 1936 (kymographic analysis), Posti 1937 (oscillographic analysis), and especially in Penttilä, Posti 1941 (oscillographic analysis) and Vihman 1971 (oscillographic and spectrographic analysis).

where stressed, cf. *ˈmi'eš̆nik̀ā* : *ˈmi'eš̆nik̀kə̄* : *ˈmi'ᵢš̆nik̀īdɪ* 'butcher (nom. & gen. sg. : part. sg. : part. pl.)'. Considering all the cases of the nonautomatic stress on the nonfirst syllable of a word as morphologically conditioned, namely as a characteristic of stems or suffixes that follow an internal boundary /+/, it can be realized that all bi- and trisyllabic words or components have their nonfirst syllables unstressed, quadru- and quinquesyllabic words and components having an automatic secondary stress on the 3rd syllable, cf. *ˈpⁱedā|gədən* 'pine (dat. pl.)', *ˈkumā|likki* : *ˈkumā|lik̀ɪz* : *ˈkumā|lik̀ɪži* 'camomile (nom. sg. : gen. sg. : part. pl.)'.[2]

Below a word or a sequence of syllables in a word, beginning in a stressed syllable up to the following stressed syllable, if there is one, is called a stress group. Indicating all internal boundaries there is no need for indicating stresses even in a phonetic transcription.

2. Quantity and stød alternations. For a vowel *ə* five degrees of quantity are distinguished, denoted according to the Finno-Ugric transcription as [*ə̆ ə ə̀ ə̄*], notably the overshort, half-short, short, half-long, and long.[3] For a single consonant *x* four degrees of quantity are distinguished, denoted as [*x̆ x x̀ x̄*], notably the half-short, short, half-long, and long. For a geminate consonant *xx* three degrees of quantity are distinguished, denoted as [*x̆x xx x̀x*], notably the short, long, and overlong. The stød is denoted by [ˈ].

Livonian quantity and stød alternations can be described by means of the following patterns, where *ω*, *ə*, *ɪ*, *a* stand for vowels and *x*, *y*, *z* for consonants, a hyphen precedes a case ending, and brackets enclose nonobligatory elements of a pattern. For quantity alternations patterns with (a) diphthongs or triphthongs with a half-long initial component (Q1—13), (b) with a long vowel in the 1st syllable (Q14—20), and (c) with a long vowel in the 2nd syllable (Q21—25) are presented first. For stød alternations the stødless patterns are presented first.

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[2] L. Posti (1942 : xix) is of somewhat different opinion: "Wenn die zweite bzw. vierte Silbe einen halblangen Vokal enthält, hat sie gewöhnlich einen Nebendruck". His viewpoint is, apparently, influenced by a similar one held by Latvian grammarians (cf. e. g. Endzelin 1922 : 20: "In zweisilbigen Wörtern ist die Endsilbe nebentonig, wenn sie suffixal oder lang ist (z. B. L. S. *mājā*) ..."). Although the persistent assimilating influence of Latvian on Livonian cannot be ignored I hold this "long quantity ergo secondary stress"-approach unjustified for Livonian, Latvian remaining out of my competence in this point. The approach proposed here enables one to correctly predict besides the stresses also the combinatory lengthening of $a = \{u, a, e, i\}$ in even syllables of stress-groups of the following patterns: (1) *ə̆xā*, (2) *ωə̆xā*, (3) *ə̀xā*, (4) *ωə̀xā*, (5) *ə̆xya*, (6) *ωə̆xya*, (7) *ωə̆xā*. (Here the initial consonants of the 1st syllable of a stress group are left out of consideration; *ə* is a vowel, *ωə* is a diphthong with an overshort initial component and *y* a consonant obligatorily different from *x* in a consonant cluster.) E. g. in *ˈkumā|likkɪz* 'camomile (gen. sg.)' whereas the other approach, apparently, has to postulate here twice so many stressed syllables, hence *ˈkuᵢmāᵢliᵢkkɪz*. Further, the boundary /+/ cannot be avoided as the geminate stops realize themselves differently in case of the automatic secondary stress and in case of the weaker variant of the nonautomatic stress, cf. *ˈkumā|likki* 'camomile' vs. *ˈamal̆'nikkə̄* 'office worker (part. sg.)'.

[3] *ə̄*, for a notational convenience, stands for *ə̂* ~ *ə̌*, i. e. for the one-and-a-half-long and/or the overlong quantities. Note also that contrary to the traditional notation the non-short vowels of even syllables of certain stress groups are long, not half-long. These vowels, by the way, are considerably longer than the Estonian "half-long" vowels in analogical cases; thus, Livonian *kalā* (traditionally *kalà*) 'fish' is actually *kalā* whereas Estonian *kalà* id. is actually *kalā*.

A. Quantity alternations

Q1	$\grave{\omega}\imath xy\alpha$	$:{}^{\omega}\imath\grave{i}xy\alpha,$	where $\omega = u$, $\iota = i$, and x is a voiceless obstruent
Q2	$\grave{\omega}\imath\grave{x}\alpha$	$:{}^{\omega}\imath\grave{i}\grave{x}(\alpha),$	where $\omega = u$, $\iota = i$ and x is a voiceless obstruent
Q3	$\grave{\omega}\imath x\alpha$	$:{}^{\omega}\imath\grave{i}x\alpha,$	where $\omega = \{u, i\}$, $\iota = \{i, u\}$, $\omega \neq \iota$
Q4	$\grave{\omega}\imath x\grave{y}\alpha$	$:{}^{\omega}\imath\bar{x}\grave{y}(\alpha),$	where $\omega = \{u, i\}$, x is a sonorant, and y is a voiceless obstruent
Q5	$\grave{\omega}\imath xy\alpha$	$:\imath\grave{i}xy\alpha,$	where $\omega = u$, preceded by a labial consonant, and $\iota = i$
Q6	$\grave{\omega}\imath xy\alpha$	$:{}^{\omega}\imath\bar{x}y(\alpha),$	where $\omega = \{u, i\}$ and x is a sonorant
Q7	$\grave{\omega}\imath xy\alpha$	$:\omega\grave{\imath}xy\alpha,$	where $\imath = \{u, i\}$
Q8	$\grave{\omega}\imath\grave{x}\alpha$	$:\omega\grave{\imath}\grave{x}(\alpha),$	where $\imath = \{u, i\}$
Q9	$\grave{\omega}\imath x\alpha$	$:\imath\grave{i}x\alpha,$	where $\omega = u$, preceded by a labial consonant, and $\iota = i$
Q10	$\grave{\omega}\imath x\alpha$	$:{}^{\omega}\imath\grave{i}\breve{x}x\alpha \sim {}^{\omega}\imath\grave{i}x\alpha,$	where $\omega = u$, $\iota = i$, $x = j$
Q11	$\grave{\omega}\imath x(\alpha)$	$:{}^{\omega}\imath\grave{i}x(\alpha),$	where $\omega = i$, $\iota = u$
Q12	$\grave{\omega}\imath x\alpha$	$:{}^{\omega}\imath\grave{x}xx\alpha \sim {}^{\omega}\imath\bar{x},$	where $\omega = \{u, i\}$ and x is a sonorant
Q13	$\grave{\omega}\imath x\alpha$	$:\omega\grave{\imath}x(\alpha),$	where $\imath = i$
Q14	$\bar{\imath}x\grave{y}\alpha$	$:\imath\bar{x}\grave{y}(\alpha),$	where x is a sonorant and y is a voiceless obstruent
Q15	$\bar{\imath}xy\alpha$	$:\imath\bar{x}y(\alpha),$	where x is a sonorant
Q16	$\bar{\imath}x\grave{y}\alpha$	$:\imath\grave{i}xy\alpha,$	where $\iota = u$
Q17	$\bar{\imath}\grave{x}\alpha$	$:\imath\grave{i}\grave{x}(\alpha),$	where $\iota = \{u, i\}$ and x is a voiceless obstruent
Q18	$\bar{\imath}x\alpha$	$:\imath\grave{i}\breve{x}x\alpha \sim \imath\grave{i}x\alpha,$	where $\iota = \{u, i\}$, $x = \{v, j\}$
Q19	$\bar{\imath}x\alpha$	$:\imath\grave{i}x(\alpha),$	where $\iota = \{u, i\}$
Q20	$\bar{\imath}x\alpha$	$:\imath\grave{x}xx\alpha \sim \imath\bar{x},$	where x is a sonorant
Q21	${}^{\omega}\imath\breve{x}y\bar{\alpha}$	$:{}^{\omega}\imath\breve{\bar{x}}y(\alpha),$	where $\omega = \{u, i\}$ and x is a voiceless obstruent
Q22	${}^{\omega}\imath\grave{x}\bar{\alpha}$	$:{}^{\omega}\imath\grave{x}x\alpha,$	where $\omega = \{u, i\}$ and x is a voiceles obstruent
Q23	$\imath\breve{x}y\bar{\alpha}$	$:\imath\bar{x}y(\alpha),$	where x is a voiceless obstruent
Q24	$\imath\grave{x}\bar{\alpha}$	$:\imath\grave{x}x\alpha \sim \imath\bar{x},$	in a stress group preceded by /+/ whereas x is a voiceless obstruent
Q25	$\imath\grave{x}\bar{\alpha}$	$:\imath xx\alpha$	in a stress group having automatical secondary stress whereas x is a voiceless obstruent

B. Stød alternations

S1	${}^{\omega}\imath\breve{\imath}x\bar{\alpha}$	$:{}^{\omega}\imath'\imath x\alpha,$	where $\omega = u$, $\iota = i$
S2	$\breve{\omega}\imath\breve{x}\bar{\alpha}$	$:\omega'\imath x\alpha,$	where $\imath = \{u, i\}$
S3	${}^{\omega}\imath x\bar{\alpha}$	$:{}^{\omega}\imath' xx\alpha,$	where $\omega = \{u, i\}$

S4	*ɜxā*	*:ɜ'ιx̆xa ~ɜ'xxa ~ɜ'ι(x)*,	where $\iota = \{u, i\}$, $x = \{v, j\}$
S5	*ɜxā*	*: ɜ'x(xa)*	where *x* is a sonorant or a voiced obstruent
S6	*ȯɜx-ya*	*:ᵐɜ'x, ɜ'x,*	where $\omega = i$ and *x* is a sonorant
S7	*ᵐɜxā*	*: ᵐɜ'x, ɜ'ιx,*	where $\omega = \iota = i$
S8	*ᵘɜx̀ā*	*: ᵘɜ'x,*	where $\omega = u$
S9	*ȯɜ(-xa)*	*: ω'ɜ-xa,*	where $\omega = \{u, i\}$
S10	*ɜ̄(-xa)*	*: ɜ̄'-xa*	

Examples (if not otherwise indicated then the order of presentation is (a) nominative pl., (b) nominative sg. and (c) partitive sg. for nouns and (a) present indicative, 1& 3sg. and (b) the 1st infinitive for verbs): Q1 *rùoiskaD, rùoiska : rᵘolskə̂* 'long rod'; Q2 *rùoiḳəʙ : rᵘoḷḳə̂* 'to hurry (intr.)', *lùoiḳəD : lᵘolḳ, lᵘoḷḳə̂* 'valley; coast'; Q3 *lùoimaD, lùoima : lᵘolmə̂* 'warp'; Q4 *kìelpaD, kìelpa : kⁱelpə̂* 'hip-side of a roof'; Q5 *mùoštaʙ : mǫlstə̂* 'to understand'; Q6 *kùondaD, kùonda : kᵘoñdə̂* 'heel', *sùormə̂D : sᵘoŕm, sᵘoŕmə̂* 'finger'; Q7 *làiskaD, làiska : laɪskə̂* 'lazy'; Q8 *pàiḳaD, pàiḳa : paɪḳə̂* 'place', *làiḳəD : laɪḳ, laɪḳə̂* 'blaze'; Q9 *pùogaD, pùoga : pǫlgə̂* 'son; boy'; Q10 *kùojaD, kùoja : kᵘolj̆jə̂ ~ kᵘoljə̂* 'moth'; Q11 *lìedaʙ : lⁱeùdə̂* 'to find'; *kìeḏ̂D, kìeD : kⁱeùz̆* 'rope (nom. pl., gen. sg. : nom. sg.)'; Q12 *kùonaD, kùona : kᵘoṅnə̂* 'frog'; *sùoṅə̂D : sᵘoñ, sᵘoñṅə̂* 'sinker of a fish-net'; Q13 *àigaD, àiga : aɪgə̂* 'time, weather'; *àigə̂D : aɪo, aɪgə̂* 'pike', *àigist, àigiz : aɪgi, aɪgist* 'timely (adj.; part. sg., gen. sg. : nom. sg., nom. pl.)'; Q14 *pālḳaD, pālḳa : palḳə̂* 'pay, wages'; Q15 *jālgaD, jālga : jalgə̂* 'foot'; *ālgə̂D : alo, algə̂* 'billet (of firewood)'; Q16 *kōstaD, kōsta : koùstə̂* 'cross-beam of a sled'; Q17 *lōḳaD, lōḳa : loùḳə* 'leek', *ōḳə̂D : oùḳ, oùḳə̂* 'hole, pit'; Q18 *pāvaD, pāva : pāùv̆və̂ ~ pāùvə̂* 'day', *kūjaD, kūja : kuljj̆ə̂ ~ kuljə̂* 'dry'; Q19 *sōnaD, sōna : soùnə̂* 'bath-house', *lōləD : loùl, loùlə̂* 'song'; Q20 *kǭnaD, kǭna : kaṅnə̂* 'jug', *pǭnaD : pañ, paṅnə̂* 'pan'; Q21 *lⁱeštāD, lⁱeštā : lⁱeštə̂* 'flounder'; Q22 *lⁱepāD, lⁱepā : lⁱeppə̂* 'alder', *rⁱepūD : rⁱepū, rⁱeppə̂* 'tobacco-pouch made of sealskin'; Q23 *maḳsāD, maḳsā : maḳsə̂* 'liver', *maḳsūD : maḳs, maḳsə̂* 'tax, fee', *vaš̆'kist, vaš̆'kiz : vaški, vaškist* 'copper (adj.; part. sg., gen. sg. : nom. sg., nom. pl.)'; Q24 *vaḳāD, vaḳā : vaḳkə̂* 'bushel', *kaḳūD : kaḳ, kaḳkə̂* 'cake'; *amaɪ̀ + niḳāD, amaɪ̀ + niḳā : amaɪ̀ + niḳkə̂* 'office worker', *kuḳist, kuḳiz : kuḳki, kuḳkist* 'bug (part. sg., gen. sg. : nom. sg., nom. pl.)'; Q25 *pāvaliḳist, pāvaliḳiz : pāvalikki, pāvalikkist* 'sun (part. sg., gen. sg. : nom. sg., nom. pl.)'; S1 *kᵘolgiD : kᵘo'io, kᵘo'igə̂* 'ship'; S2 *algāD, algā : a'igə̂* 'edge, shore'; S3 *sᵘodāD, sᵘodā : sᵘo'ddə̂* 'war', *tⁱegūD : tⁱe'o, tⁱe'ggə̂* 'face'; S4 *tęvāD, tęvā : tę'uv̆və̂ ~ tę'uvə̂* 'deep', *ęvūD : ę'uv, ę'uv̆və̂ ~ ę'uvə̂* 'heifer', *tajāD, tajā : ta'ij̆jə̂ ~ ta'jjə̂* 'dry', *ka'i, ka'ijj̆ə̂ ~ ka'jjə̂* 'harm'; *vanāD, vanā : va'nnə̂* 'old'; S5 *kalāD, kalā : ka'llə̂* 'fish', *talūD : ta'l, ta'llə̂* 'peasant', *alist, aliz : a'lli, a'llist* 'down, lower (adj.; part. sg., gen. sg. : nom. sg., nom. pl.)'; S6 *vìerda : ve'r, vⁱe'r* 'blood (part. sg. : nom. sg., gen. sg.)'; S7 *vⁱeìa : vⁱe'D, ve'iž* 'water (part. sg. : gen. sg., nom. sg.)'; S8 *kᵘoìa : kᵘo'D* 'home (part. sg. : nom. & gen. sg.)'; S9 *sùodə̂,*

sùo : *su'ozə̑* 'swamp (part. sg., nom. sg. : ill. sg.)'; S10 *pädə̑*, *pǟ* : *pǟ'zə̑* 'head (part. sg., nom. sg. : ill. sg.)'.

Note that in nom. pl. *-ɒ* ~ *-t* is the pluralizer. Nom. sg. ends in a vowel for monosyllabic vocalic stems and for bisyllabic *a*- and *e*-stems (however, there is one single *e*-stem in Livonian: *kurē* (part. sg. *ku'ŕŕə̑*) 'devil'). Nom. sg. ends in a consonant for *u*-, *i*-, *ə̑*-stems and for consonantal stems (S6—8). In part. sg. *-da* and *-də̑* are the case endings for monosyllabic stems ending, respectively, either in a sonorant (S6) or in a long vowel or a diphthong (S9—10), *-tə̄* is the ending for monosyllabic consonantal stems of the types S7—8 whose stem in gen. sg., characteristically, ends in *ɒ*; *-t* is the case ending for stems ending in a fricative (in *z* in gen. sg.).

Moreover, attention should be drawn (1) to the fact that the monosyllabic nom. sg. forms of the bisyllabic vocalic stems resemble the corresponding forms of part. sg. either in their pattern of quantity distribution or in having stød whereas the bisyllabic nom. sg. forms are analogical to the corresponding nom. pl. forms and (2) that no other vowel besides *ə̑* can occur in the 2nd syllable of the part. sg. forms of the bisyllabic vocalic stems. It is sensible to consider these phenomena to be conditioned by phonological entities that are called here the grave accent /ˋ/ and the broken accent /ˆ/. The grave accent, then, can be characterized as having either (a) a diphthong or a triphthong whose final component is half-long, (b) an overlong geminate consonant, or (c) a consonant cluster whose initial component is long. The broken accent is characterized by presence of stød (note, however, that in 3.3 below, for most cases of stød, namely for S3, 5—6, 8 an alternative solution will be proposed). Syllables having either the grave or the broken accent are called strong syllables, other stressed syllables are weak syllables. Stress groups are strong or weak depending on whether they begin in a strong or in a weak syllable. A stem or a word consisting of a single stress group is strong or weak depending on which is the stress group. A stem or a word consisting of more than one stress group is called strong or weak depending on which is its last stress group. In any word, an unstressed syllable of a strong stress group contains either *ə̑* or, in some derivational suffixes and inflections *i*.

3. Crucial problems: (1) how to analyze (i) the initial components of triphthongs, (ii) the initial components of diphthongs ending in *o* and *e*, (iii) monophthongs, and (iv) the initial components of diphthongs ending in *u* and *i* in stressed syllables; (2) whether *u* and *i* as the final components of diphthongs and triphthongs represent the phonemes /*u*/ and /*i*/ or the phonemes /*v*/ and /*j*/; (3) whether geminate consonants following a short monophthong or an overshort diphthong represent single phonemes or geminates, and (4) whether half-long voiceless obstruents *x* in environments $^{\omega}ə\_\bar{a}$ and $ə\_\bar{a}$ represent single phonemes or geminates.

3.1. The problem of phonologization of monophthongs and the initial components of triphthongs and diphthongs requires a unique solution for all the four groups listed above. The problem can be reduced to the question of how to analyze different quantities of *ω* in pattern groups (i), (ii), (iv) and those of *ə* in pattern group (iii):

	weak	strong		weak	strong
(i)	*ὼɜıxa*	*ωɜ̀ixa*	(ii)	*ὼɜxa̋*	*ωɜ̀xxa*
	ωɜ̆ıxā	*ωɜ'ıxa*		*ωɜxā*	*ωɜ'xxa*
		ω'ɜıxa			*ω'ɜxa*
(iii)	*ɜ̄xa*	*ɜ̀xxa*	(iv)	*ὼɜxa*	*ωɜ̀xa*
	ɜxā	*ɜ'xxa*		*ωɜ̆xā*	*ω'ɜxa*
		ɜ̄'xa			

In each group (i) — (iv) the first two rows present pairs of alternating patterns whereas the third row presents, for groups (i) — (iii) one single pattern. The pattern *ω'ɜıxa* in (i) is represented by a single stem with allomorphs *tu'oigəz* ~ *tu'oigə̂s-* ~ *tu'oigə̂-* 'birch bark'.

A. *ω* in strong patterns of groups (i) and (ii), *ὼ* and *ɜ̄* represent sequences of two identical vowel phonemes. Note that for this solution the alternation weak : grave is always accompanied by another alternation: by */ωω : ω/* in (i), (ii) and (iv) and by */ɜɜ : ɜ/* in (iii), cf. */kuuona* : *`kuonnę/* (Q12), */kååna* : *`kannę/*[4] (Q20). Resolution of */ωω/* and */ɜɜ/* into */ω̄/* and */ɜ̄/*, i. e. into long vowel phonemes has no positive effect. It simply replaces one type of accompanying alternation with another, more exactly: the alternation 2 phonemes : 1 phoneme with 8 isolated alternations in a set of 15 phonemes, not to speak about 7 extra phonemes.

B. The double alternation discussed above can be avoided by omitting the grave accent. Then, however, it must be supposed that weak and strong patterns are distinguished on the basis of their phonemic composition as e. g. to the two sound patterns *ωɜ̆xā* and *ωɜ̀xa* in (iv) corresponds one phoneme pattern. The situation could be saved only by interpreting *ā* as */aa/*. This, however, is possible only if one renounces the conception of stress in Livonian accepted in section 1.

C. *ὼ* and *ɜ̄* in weak patterns represent single phonemes in syllables marked with the acute accent. In other words, weak forms are either unmarked or are marked with the acute accent whose characteristic representation is the lengthening of a monophthong or of the first component of a diphthong or a triphthong of the stressed syllable. Except the weak patterns, everything is as for solution A. Although the present solution has instead of the two alternations mentioned for solution A one single alternation acute : grave, it has a new double alternation. For solution C, the accent alternation acute : broken is accompanied by alternations */ω : ωω/* in (ii) and */ɜ : ɜɜ/* in (iii), cf. */'suodę : ˇsuuozę/* (S9) and */'pädę : ˇpääzę/* (S10).

D. As for solution C, *ὼ* and *ɜ̄* in weak patterns represent here single phonemes under the acute accent. The broken accent as defined in section 2 above is replaced by two syllable accents: by the drop accent and the broken accent. For patterns with stød, those beginning in *ω*

[4] Although *ō̆* at the end of opened syllables of East Livonian could be viewed as */aa/* as no *ā* occurs in this position (note that standard Livonian did not distinguish between *ō̆* and *ā*) there are some cases both of *ō̆* and *ā* in closed syllables and both of *ò̆* (~ *ō̆*) and *à* before *i*, cf. *kōndęᴅ* 'lids' : *kāndęᴅ* 'trunks, stumps', *zòigęᴅ* (~ *zōigęᴅ*) 'saws' : *àigęᴅ* 'pikes'. Therefore *ŏ* is considered to represent the phoneme */å/* in all positions.

of groups (i) and (ii), in ə of group (iii), and those of group (iv) represent patterns with the drop accent. The patterns with stød beginning in *ω* of groups (i) and (ii), and in ə̄ of group (iii) represent patterns with the broken accent. Hence all different vowel quantities are conditioned by different syllable accents.

3.2. For *u* and *i* as the final components of diphthongs and triphthongs three different analyses are possible.

A. *u* and *i* represent everywhere the phonemes */u/* and */i/*. Hence, there must occur in Livonian a variety of alternations such as */v : uv/* (Q18, S4), */u : vv/*, cf. *nę'u : nę'vvə̑* (nom. sg. : part. sg.) 'advice' (S4), */u ~ uv : uv/*, cf. *o'u ~ o'uv : o'uv̆və̑* 'glory (nom. sg. : part. sg.)', */j : ij/* (Q10, 18), */i : ij ~ jj/* (S4). Such a great phonemic variability makes the reality of the solution rather doubtful.

B. *u* and *i* represent the phonemes */u/* and */i/*, except in Q10, 18 and S4 where they represent the phonemes */v/* and */j/*. More exactly: in strong patterns of Q10, 18 and S4 the following equations hold intervocalically:

$$\left\{\begin{matrix} u\breve{v}v \sim uv \\ u\breve{v}v \sim uv \sim vv \end{matrix}\right\} = /vv/, \quad \left\{\begin{matrix} i\breve{j}j \sim ij \\ i\breve{j}j \sim jj \end{matrix}\right\} = /jj/,$$

whereas word-finally *u ~ uv* = */v/* and *i* = */j/* in S4 (i. e. under the drop accent) and *i* = */j/* in Q10, 18 (i. e. under the grave accent). (I know no examples of *u(v)* = */v/* in East Livonian although there is at least one such in West Livonian.) Nevertheless the solution B will not do as now there exist phonemic contrasts in the case of phonetic similarities, e. g. */'jej : 'ei/*, cf. *jeì, jeìjjə̑* 'ice (nom. sg., part. sg.)' and *eì, eìma* 'remain (past 3 sg., past 1 pl.)'.

C. *u* and *i* as the final components of diphthongs and triphthongs represent everywhere the phonemes */v/* and */j/*. Then, intervocalically,

$$\left\{\begin{matrix} u\breve{v}v \sim uv \\ u\breve{v}v \sim uv \sim vv \end{matrix}\right\} = /vv/, \quad \left\{\begin{matrix} i\breve{j}j \sim ij \\ i\breve{j}j \sim jj \end{matrix}\right\} = /jj/$$

just as for solution B. Word-finally, when preceded by a vowel, *u ~ uv* = */v/*, *i* = */j/*, *uv* = */v/*, *i* = */j/*. */v/* and */j/*, then, compose a separate class of consonant phonemes. They, like sonorants, when occurring as the first components of consonant clusters are lengthened under the grave accent and serve as the necessary condition for lengthening of the preceding monophthong (i. e. of *ω* in groups (ii) and (iv) and of ə in group (iii) in 3.1) or of the first component of the preceding diphthong (i. e. of *ω* in group (i) in 3.1) under the acute accent. Note, however, that representatives of sonorants when lengthened in strong forms, except in geminates, are long whereas those of */v/* and */j/* are half-long. Analogically, monophthongs are long when lengthened before sonorants and half-long when lengthened before */v/* and */j/*. Lastly, the representatives of */v/* and */j/*, like voiceless obstruents, can be half-short, cf. S1—2. Note that according to solution C there are only two phonological diphthongs in Livonian: */uo/* and */ie/* (both being sequences of phonemes, not unit phonemes).

3.3. The problem whether geminate consonants when following a short monophthong or an overshort diphthong, cf. groups (ii) — (iii) in 3.1, represent single or geminate phonemes may arise because of the fact that

short monophthongs and overshort diphthongs in strong patterns are never followed by one single consonant, except in those with stød word-finally. In the latter cases geminates never occur. Hence the problem can be formulated more exactly as follows: which of the two possible solutions is more realistic: (a) *xx* in *ᵘɜx̀xa, ɜx̀xa, ᵘɜ'xxa, ɜ'xxa* represents */x/* or (b) *xx* in *ᵘɜx̀xa, ɜx̀xa, ᵘɜ'xxa, ɜ'xxa* represents */xx/* and there exists an alternation */xx : x/* in words with the drop and the grave accent? If the first solution is correct then there exist the following phonological patterns */ˋωɜxa/, /ˋɜxa/, /ˆωɜxa/, /ˆɜxa/*. The acceptance or nonacceptance of this solution depends primarily on what one thinks the words are. I hold the view that words are well-formed strings of syllables (produced from strings of monemes[5]) and that phonological syllables cannot be basically different from phonetic syllables. From the two syllabifications that are a priori possible for the first solution the syllabification */ˋωɜ.xa/, /ˋɜ.xa/, /ˆωɜ.xa/, /ˆɜ.xa/* contradicts, first, the fact that the grave accent is otherwise unexceptionally represented by certain lengthenings in the stressed syllable, second, the fact that "where a short vowel marked with stød is followed by a long voiced obstruent, stød is frequently manifested as what appears to be a glottal stop interrupting the voiced obstruent" (Vihman 1971 : 286), and, third, the fact that both synchronically and historically *xy* with *x* being a voiced obstruent and *xx* both being preceded by a short monophthong or an overshort diphthong have served as necessary conditions for introducing the drop accent. The syllabification */ˋωɜx.a/, /ˋɜx.a/, /ˆωɜx.a/, /ˆɜx.a/* in its turn contradicts the fact that only stem- or word-initial syllables can begin in vowels. Hence, I am inclined to adopt the solution (b) as the more realistic one although it suggests also the adoption of an otherwise extra alternation. The geminate solution, however, may provoke a further question: is it sensible to consider the drop accent as positionally conditioned for syllables with a phonological monophthong or diphthong followed by a geminate or by a consonant cluster beginning in a voiced obstruent? This question, probably, can be answered in the negative as otherwise the alternation unmarked : drop would lose its generality. Of course, one can get rid of the drop accent as such by treating the length of *ā*-s in even syllables of the corresponding unmarked patterns as representing the acute accent. Despite the obvious generalization — any weak pattern has the acute accent either on the first or on the second syllable — that can be achieved this way I hold this approach to be erroneous because it contradicts the treatment of stress in Livonian presented in section 1 above.

3.4. For half-long voiceless obstruents in environments *ᵘɜ_ā* and *ɜ_ā* (and elsewhere) two analyses are possible.

A. Q22 can be considered as analogical to Q21 and Q24—25 as analogical to Q23 in three points: (a) vowels of the 1st syllables do not alternate, (b) there is a (phonetic) quantity alternation *ā : a* in the 2nd syllable, (c) the characteristic of strong patterns is a consonant cluster with a lengthened first component (this component is half-long for geminates and long for heterogeneous clusters). If one regards this analogy as a sufficient argument for treating the half-long voiceless obstruents as representatives of phonological geminates, then Q22 and

[5] I prefer not to follow the widespread tradition of calling any smallest meaningful pieces *morphemes*.

Q24—25 will have geminates, i. e. clusters both in strong and weak forms. It is noteworthy that Kettunen (1925, 1938, 1947) has written short geminates instead of half-long voiceless obstruents. In transcription the half-long voiceless obstruents were noted first by Posti (1936). Despite Kettunen's view (1936) that the geminate notation is the only correct one, P. Ariste has claimed that this difference is not purely notational: the short geminates were characteristic of the older generations of Livonians whereas the half-long single obstruents are proper to the pronunciation of the younger generation. This claim seems correct as in some idiolects a short geminate is still present in the environments *ɯ̀ɜx__α* and *ɜx__α* with *x* being a sonorant, cf. *skùolšsə̂* 'school (inessive sg.)', *jūršsə̂* 'at'.

B. As, in a word, no other voiceless single obstruents besides the half-long occur intervocalically, and as voiceless obstruents are the only intervocalic half-long consonants, then any half-long obstruent, intervocalic or not, can be treated as phonemically single. Having accepted this solution one may claim that a phonological cluster simplification has recently taken place for voiceless obstruents except under the grave accent. That such a phonetical simplification has taken place is quite certain.

3.5. The discussion in 3.1—3 results in a phonological transcription that can be illustrated for pattern groups (i) — (iv) as follows:

(i)	*/'luojma* : *`luojmę/* (Q3)	(ii)	*/'kuona* : *`kuonnę/* (Q12)
	/kuojgid : *ˆkuojgę/* (S1)		*/kuolub* : *ˆkuollę/*[6] (S3)
	/ˇtuojgęz/		*/ˆsuozę/* (S9)
(iii)	*/'kåna* : *`kannę/* (Q20)	(iv)	*/'ajga* : *`ajgę/* (Q13)
	/vana : *ˆvannę/* (S5)		*/ajga* : *ˆajgę/* (S2)
	/ˇkånę/[7]		

According to 3.1 and 3.4 the transcription for voiceless obstruents can be illustrated by means of the examples */vaka* : *`vakkę/*, */amat+nika* : *amat+`nikkę/* (Q24) and */'pävalikist* : *'päva`likkist/* (Q25).

4. Accent paradigms of Livonian. Above we succeeded in obtaining a phonologization that makes it possible to derive all the stød and quantity distinctions in Livonian from five types of stressed syllables. Four of the types are marked each by a specific syllable accent, one being unmarked. All alternations Q1—25 and S1—10 can thus be reduced to five paradigms with alternations of the general type weak vs. strong:

(i) acute : grave (Q1—20),
(ii) unmarked : grave (Q21—25),
(iii) unmarked : drop (S1—5, 7—8),
(iv) acute : drop (S6),
(v) acute : broken (S9—10).

Besides the five alternational paradigms there exist in Livonian also alternationless paradigms, i. e. paradigms with fixed accent, cf. the following mono- and disyllabic patterns:

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[6] */kuolub* : *ˆkuollę/* = *kuolūв* : *kuo'llə̂* 'to bend, crook (intr.)'.

[7] */ˇkånę/* = *kō̆'nə̂* is part. sg. from *kō̆'n* 'honeycomb'.

F1 $\grave{\omega}\text{ɜ}x(\alpha)$, where $\text{ɜ} = i$
F2 $\bar{\text{ɜ}}x(\alpha)$
F3 $\bar{\text{ɜ}}(x(\alpha))$
F4 $\text{ɜ}\grave{x}x\alpha \sim \text{ɜ}\bar{x}$
F5 $\omega'\text{ɜ}x\alpha \sim \omega'\text{ɜ}\iota$, where $\iota = i$ and $x = j$
F6 $\omega'\text{ɜ}x(\alpha)$
F7 $\bar{\text{ɜ}}'xy\alpha$
F8 $\bar{\text{ɜ}}'x\alpha \sim \bar{\text{ɜ}}'\iota$, where $\iota = i$ and $x = j$
F9 $\bar{\text{ɜ}}'x(\alpha)$
F10 $\bar{\text{ɜ}}'(x(\alpha))$
F11 $\text{ɜ}'xy(\alpha)$

Examples (nom. pl., nom. sg., part. sg.): F1 *rùimɔ̂ᴅ, rùim, rùimɔ̂* 'room'; F2 *ō̲bɔ̂ᴅ, ō̲bɔ̂, ō̲bɔ̂* 'aspen', *kǭl'ɔ̂ᴅ, kǭl', kǭl'ɔ̂* 'girdle'; F3 *mǭᴅ, mǭ, mǭdɔ̂* 'land, soil'; F4 *vaǹnɔ̂ᴅ, vaǹ, vaǹnɔ̂* 'tub'; F5 *pu'ojɔ̂ᴅ, pu'oi, pu'ojɔ̂* 'bottom'; F6 *kę̀'urɔ̂ᴅ, kę̀'urɔ̂, kę̀'urɔ̂* 'crooked, curved', *i'elɔ̂ᴅ, i'el, i'elɔ̂* 'street'; F7 *kǭ'skɔ̂ᴅ, kǭ'skɔ̂, kǭ'skɔ̂* 'fur coat'; F8 *ō̲'jɔ̂ᴅ, ō̲'i, ō̲'jɔ̂* 'stove'; F9 *nǭ'gɔ̂ᴅ, nǭ'gɔ̂, nǭ'gɔ̂* 'leather, skin'; *kǭ'nɔ̂ᴅ, kǭ'n, kǭ'nɔ̂* 'honeycomb'; F10 *rǭ'ᴅ, rǭ', rǭ'dɔ̂* 'money'; F11 *a'lgɔ̂ᴅ, a'lɢ, a'lgɔ̂* 'salary'.

Although the list of alternationless patterns, probably, is not exhaustive it can be seen that there are four paradigms with fixed accent, namely with acute, grave, broken and drop accent. A paradigm with permanently unmarked, accentless stressed syllables does not exist.

Hence there are nine accent paradigms in Livonian.

No. of paradigm	Accent		Types
1	acute		F1—3
2	unmarked	grave	Q1—20
3		broken	S9—10
4		drop	S6
5			S1—5, 7—8
6			Q21—25
7		grave	F4
8		broken	F5—10
9		drop	F6, 11

The nine paradigms can be divided into three groups: weak (paradigm 1), alternational (paradigms 2—6), and strong (paradigms 7—9). The problem to what extent these accent paradigms are pattern conditioned requires further investigation.

5. Previous phonologizations of quantity and stød in Livonian. In a proposal for a simplified, actually for a phonological transcription of Livonian presented to the committee for Finno-Ugric transcription in 1965, L. Posti established for Livonian three phonologically relevant tones: rising, broken, and falling that were to be written by means of numeric upper indices before the corresponding syllables (cf. Posti 1973). The terminology was borrowed from the Latvian tradition as beginning with Posti (1936) the presence of the corresponding Latvian tones in Livonian

has been repeatedly discussed (cf. Kettunen 1936 : 486—488, 1937 : 313—315, 1938 : xx—xxi, 1947 : 21—23; Posti 1937a : 194—195, 1937b : 448—449, 1942 : 324—327; Suhonen 1973 : 15—17). The falling tone, however, is a representative of the morphological boundary in compounds with a monosyllabic first component that otherwise has stød. Thus Posti's solution has two tones comparable with the above accents. Posti distinguishes two kinds of vowel phonemes: short and long. Long vowels never occur as the nonfirst components of diphthongs and triphthongs. Except this case, any long and half-long vowels are considered allophones of long vowel phonemes. Final *u* and *i* in diphthongs and triphthongs represent the phonemes */u/* and */i/*. Half-long voiceless obstruents represent single phonemes. Posti's transcription can be illustrated as follows (cf. 3.5. above):

(i)	*/ˈlūoima*	: *ˈluoimə/*	(ii)	*/ˈkūona*	: *ˈkuonnə/*
	/kuoigid	: *²kuoigə/*		*/kuolūb*	: *²kuollə/*
		/²tūoigəz/			*/²sūozə/*
(iii)	*/ˈkōna*	: *ˈkannə/*	(iv)	*/ˈāiga*	: *ˈaigə/*
	/vanā	: *²vannə/*		*/aigā*	: *²aigə/*
		²kōnə/			

According to Posti, */ə/* is in East Livonian rather an allophone of */ę/*, This is the only point in which his transcription is, consciously, not phonological. Even more, Posti has noted that the rising tone can be omitted if other tones are not. Hence Posti's approach has been entirely sensible although it can be refuted on the basis of the discussion presented in sections 3.1 A—B and 3.2 A—B.

Of the other two treatments of Livonian phonology that of S. Suhonen (1966) has remained inaccessible to me. As for the generative approach presented in the otherwise very interesting and valuable investigation of M. M. Vihman (1971) there is no basis for comparison as she derives all phonetic quantity and stød distinctions directly from underlying entries that are very different from the corresponding units of contemporary Livonian.

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ТИЙТ-РЕЙН ВИЙТСО (Тарту)

О ФОНОЛОГИЧЕСКОЙ РОЛИ УДАРЕНИЯ, КОЛИЧЕСТВА И СТЁДА В ЛИВСКОМ ЯЗЫКЕ

Исходя из требования, что фонологическая транскрипция, кроме отражения всех релевантных в языке дистинкций, должна гарантировать и возможность наиболее разумного описания продуктивных морфологических процессов, проблемы, связанные со сложной количественной системой и стёдом (гортанным приступом), являются критическими для ливского языка. Решение этих проблем во многом зависит от трактовки ударения.

1. За исключением безударных односложных союзов и кратких местоимений, главное ударение находится на первом слоге слова, если слово не начинается с безударного префикса, или на первом слоге основы, если слово начинается с безударного префикса. Первый слог основы ударен также в словах, начинающихся с ударного префикса, и в подсловах сложного слова; это ударение слабее главного. Такое же ударение имеет суффикс *-nikd*. Считая все эти случаи неавтоматического ударения на непервом слоге морфологически обусловленными — характерными для основ и суффиксов, стоящих после внутренней границы /+/, можно утверждать, что непервые слоги всех 2- и 3-сложных слов или подслов, которым предшествует словораздел или /+/, безударны, а 4- и 5-сложные слова или подслова имеют автоматическое второстепенное ударение на третьем слоге.

2. Для чередований количеств (Q1—25) и стёда (S1—10) устанавливаются сильные и слабые ударные слоги (и формы), причем сильные характеризуются наличием стёда или слогового акцента гравис /ˋ/. При акценте гравис встречается одно из следующих характерных сочетаний: а) дифтонг или трифтонг с полудолгим конечным компонентом, б) сверхдолгая гемината или в) сочетание согласных с долгим начальным компонентом.

3. Полудолгота начальных компонентов дифтонгов и трифтонгов обусловлена акутовым акцентом /ˊ/; так, слабые слоги (и формы) либо немаркированы, либо маркированы акутовым акцентом. Формы со стёдом обусловлены падающим акцентом /ˆ/, если они имеют дифтонг или трифтонг, начальный компонент которого либо ультракраткий *u* или *i*, либо отличный от *u* и *i* краткий гласный; остальные случаи стёда обусловлены сломанным акцентом /ˇ/. *u* и *i* в качестве конечного компонента дифтонга или трифтонга репрезентируют фонемы /*v*/ и /*j*/.

4. Чередования Q1—25 и S1—10 сходятся на пять парадигм с чередованиями типа слабый : сильный. Кроме того, в аналогичных условиях встречаются случаи без чередований (F 1—11), сходящиеся на четыре парадигмы с фиксированным акцентом. Итак, в ливском языке есть 9 акцентных парадигм: 1) акутовая, 2) акутовая : гравис, 3) акутовая : сломанная, 4) акутовая : падающая, 5) немаркированная : падающая, 6) немаркированная : гравис, 7) гравис, 8) сломанная, 9) падающая. Эти парадигмы образуют три группы: слабые (1), альтернационные (2—6) и сильные (7—9).

5. Отклоняется фонологизация Л. Пости, согласно которой в ливском языке существуют три тона и краткие и долгие гласные фонемы.